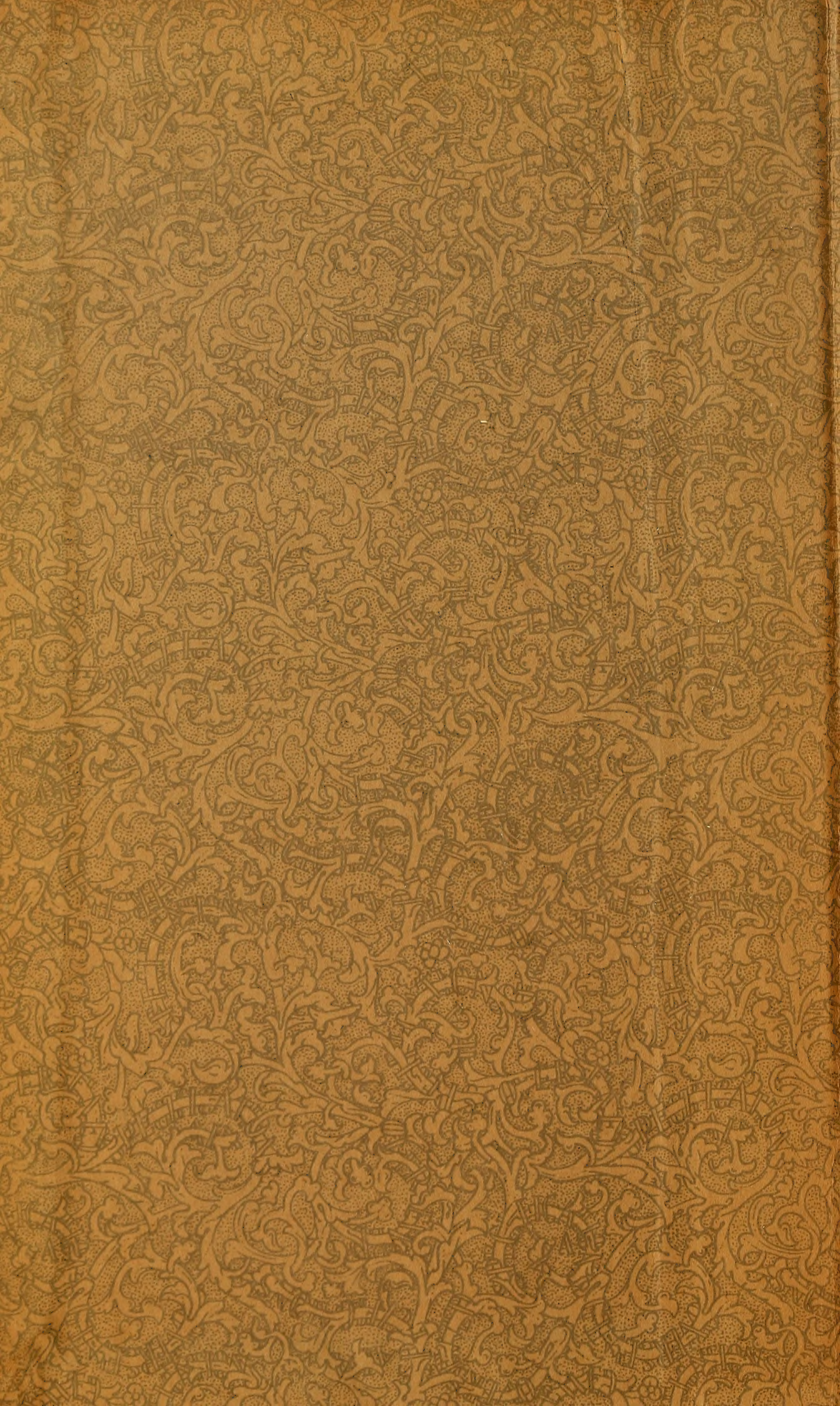

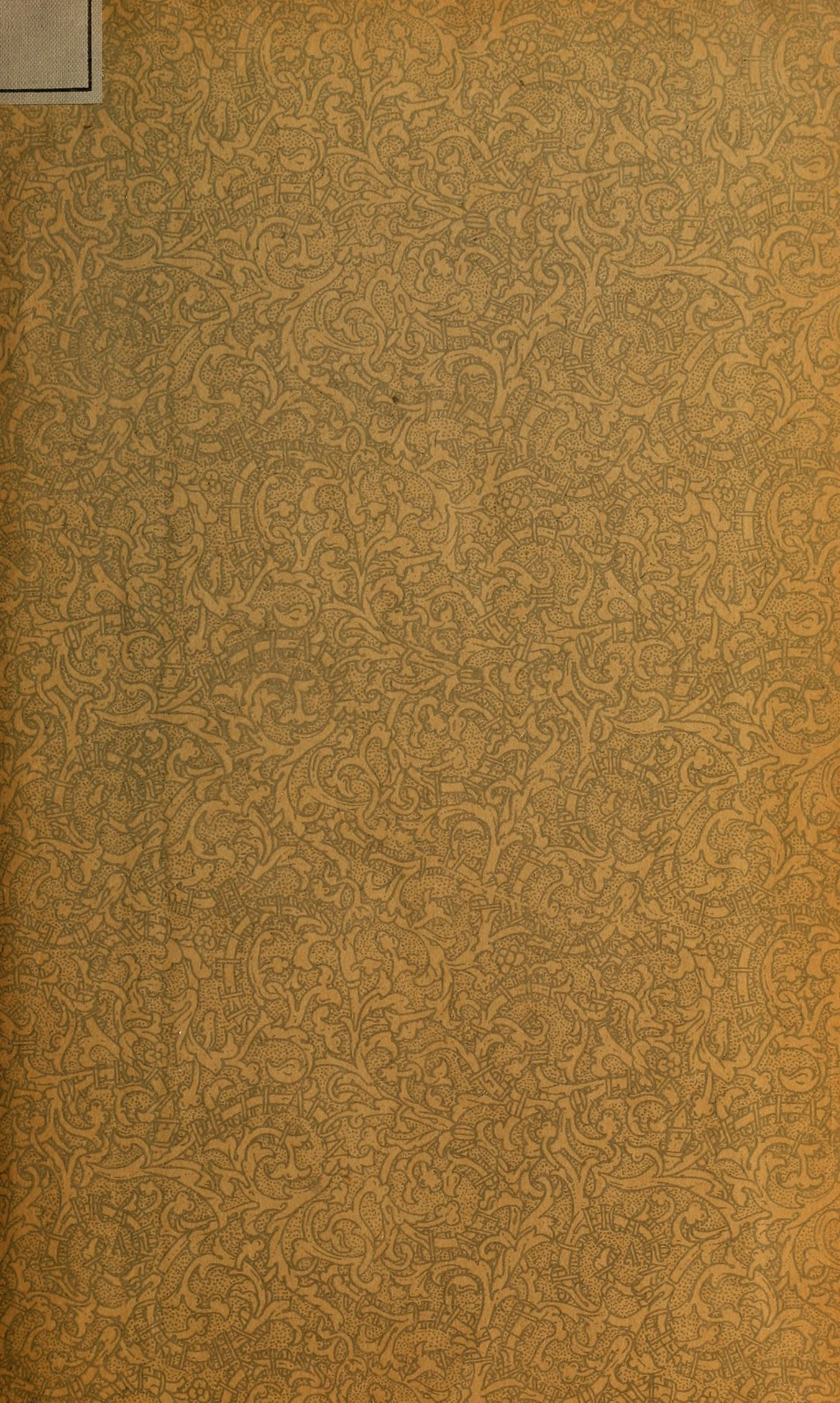

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OPEN-AIR SCHOOLS

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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REPORT ON OPEN-AIR SCHOOLS IN MASSACHUSETTS.

By Harriet L. Wedgwood, R.N., formerly Health Instructor, Massachusetts Department of Public Health.

THE Division of Hygiene of the State Department of Public Health carried on an investigation during the school year of 1919–20 to ascertain to what extent open-air schools are being maintained to improve the condition of physically subnormal children; to ascertain what modifications and improvements in matters pertaining to health, in the regular public schools, may be traced directly to the influence of open-air schools; and to determine what recommendations relative to open-air schools, or any part of the open-air school régime, might profitably be made.

Visitation, interviews and a questionnaire, sent to all cities and towns in the Commonwealth, and to a few selected localities elsewhere, were employed to elicit information along certain definite lines, as follows: —

1. The sentiment of school authorities and health authorities as to the needs of the physically subnormal school child, and the efficacy of the open-air school régime to meet those needs.

2. How many open-air and open-window rooms are now being maintained in Massachusetts; how many children are in each; what proportion they represent of the total school population, and what percentage they are of the physically subnormal children of school age.

3. What remedial measures constitute the essential régime for improving the condition of the children in these special classes, and to what extent these essential features are uniformly provided in the open-air schools of the State.

4. What remedial measures (such as abundance of fresh air, lower temperature, frequent or extended rest periods, special attention to nutrition with provision for feeding, frequent and thorough medical examinations with corrective measures, weighing at frequent and regular intervals, systematic keeping of health records, and efforts to secure home co-operation in health matters) have been undertaken for the other subnormal children, with presumably less marked symptoms, who are not in the special classes; what features that originated with the open-air school have been introduced into the practice of the regular public schools for normal children with a view to "keeping

well children well," and any evidence that exists to prove that such measures have contributed to the desired ends.

5. An evaluation of the results obtained in the open-air schools, with some information relative to the costs of the essential features and the proportionate relation of results to costs; and a comparison of the relative efficiency of open-air schools with other methods for restoring to health the anemic, malnourished, pretubercular, cardiac, neurasthenic and choreic child, and for "keeping well children well."

During the course of the inquiry visits were made to the open-air public schools in the State, to a few outside the State, and, so far as possible, to such private open-air schools and open-air schools in sanatoria as were known to this Department. Data and opinions were obtained, also, through personal interviews with school superintendents, school nurses, district nurses, physicians, boards of health and parents. A questionnaire (a copy of which appears at the end of this report) was sent out as follows: to 190 school superintendents, covering the 354 cities and towns in the State; to 4 sanatoria having open-air classes; to 21 school superintendents in cities outside Massachusetts maintaining open-air schools; and to 5 nurses outside the State interested in tuberculosis, making a total of 220 schedules sent out.

Answers were received from 122 school superintendents in Massachusetts, covering 308 cities and towns, from 3 sanatoria, and from 7 cities outside Massachusetts, with letters of information; 132 replies were received, or 60 per cent of the number of schedules sent out. Sixty-four per cent of Massachusetts school superintendents replied, and it is certain, from information obtained elsewhere, that no open-air schools are maintained in the localities not replying.

In attempting to evaluate the results of open-air schools, as suggested above, a lack of standard practice in the different schools renders the matter a difficult one. There is a considerable variation in different localities in every feature of the régime, in the keeping of records, and in the measurement of results (such as the frequency of weighing the children, which varies from weekly to yearly, and the frequency and thoroughness of physical examinations). There is also a wide difference of opinion among doctors, nurses and boards of health in respect to the scope and method of open-air schools. Even with accurate and comparable data, scientifically determined, it is a difficult matter to decide what, precisely, are the most important features of the open-air school régime. This fact is well stated in a recent book on open-air schools: —

> That open-air classes in most cases have proved beneficial to the children is a fact so clearly demonstrated that it cannot easily be shaken; . . . however,

> . . . we have yet to learn what it is about the usual open-air class which functions so effectively. Should success be attributed to low temperature, temperature changes, humidity, breezes, special feeding, sleep and rest periods, ungraded classes, picked teachers, or to a combination of these elements? It is strongly to be hoped that further classes will be carried on under experimental conditions, and definite scientific information secured.[1]

In the present study it has been impossible to obtain information that can be compared fairly. In some localities the desired information has not been obtained or recorded, and where it has been recorded it has not been on the same basis. This is especially true with reference to results to the children, and the costs of open-air schools as compared with the costs of the regular public schools. We have made an effort to reduce the available information to a comparable basis, but feel that what is here offered is insufficient for forming more than tentative conclusions. We endorse most heartily the hope, above quoted, that experiments will be made, under clearly defined conditions, to measure accurately the results; to determine scientifically what features of the open-air school régime are essential; and to establish the relative value of each feature in accomplishing the desired ends. A study of the minimum costs of providing these features should also be a part of the experiment. Since the questionnaire was sent out, several schools have expressed a willingness to make a study of this sort, through the whole or a part of a school year, if a schedule were submitted to them at the beginning of the year.

While the data herein set forth are based upon variable standards of measurement, we believe the general deductions show the present status and trend of the open-air school movement in the Commonwealth. Interest in the present study of the open-air school situation has been shown by the repeated requests for copies of the questionnaire, by the readiness to discuss features of present practice, and, in one city, by the appointment of a temporary supervisor to study the open-air schools of the city and make recommendations to the school committee.

Sentiments and Opinions.

The sentiment in regard to open-air schools and open-window rooms differs widely from most hearty approval to most hearty disapproval, with all sorts of gradations between these two extremes. Many questionnaires expressed the opinion that there was "no need for open-air schools" in the particular locality from which the reply came, but for the most part these opinions were unsupported by data of any sort. School nurses, in nearly every case, were strongly in favor of open-air schools and open-window rooms, likewise physicians; but there were two notable exceptions: One physician disapproved of open-window rooms because he does not regard them, in any sense, as open-air schools, and because the drafts are too marked in open-window rooms for the children sitting nearest the windows, if the seats are fastened to the floor; moreover, he expressed an opinion that quite as much could be accomplished by nutritional work, posture work and other health measures as by the open-air school régime. The other physician, on the other hand, seemed very doubtful as to the value of open-air schools, did not believe in them, in fact, except for a very few, and disapproved of feeding in the schools, especially at the city's expense, on the ground of paternalism.

---

[1] Healthful Schools, Ayres, Williams and Wood. Houghton, Mifflin, 1918, p. 266.

Teachers expressed various opinions. Some objected to the open windows, lower temperature and dust blowing into the rooms, on account of personal discomfort; others declared that they wished never to go back to closed-window rooms, since both they and the children were happier and felt better with open windows and hot luncheons, and they were not so "tired out" at the end of the school year. A number of teachers disliked ungraded classes, especially if they were expected to keep the pupils up to grade in all or even in the essential studies, finding their task difficult with these below-par children, with several grades in a room, and with time taken out each day for a rest period. Some superintendents admitted that the greatest problem was in the matter of grading. In Boston open-air classes, however, there are no modifications of the regular school requirements in grading or in the number of pupils per teacher, and teachers are required to keep their children up to grade in all respects, regardless of health considerations as such. The nineteen open-window rooms and the mid-morning lunches appear to be designed to assist in enabling subnormal children to keep up to grade. This point of view seems to us to be somewhat different from the one which gave rise to open-air schools, and still characterizes open-air schools generally in foreign countries as well as in this country. The original intention of the open-air school was to meet the needs of those who were "unable to profit physically and mentally by the life and work of regular indoor schools,"[1] and these schools were "based on a conception that the first essential to a worthy education is sound bodily health."[1] In other words, the first open-air school was a *special class*

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[1] Open-Air Schools, United States Bureau of Education, Bulletin No. 23, 1916.

on the basis of health first, with as much of mental work thereafter as the children in this class could profit by. Most of the other cities and towns seem to regard the open-air school as a health measure, *per se,* and to consider its influence upon scholastic attainment as secondary.

We quote below some opinions which have been offered in answer to the questionnaire regarding the value of open-air schools and the need for a greater number of them. Except as indicated, they are from Massachusetts.

"No pressing need [for open-air schools], but such schools are always desirable."

"Many more are needed, but health education must be given or else open-air provisions are only partially effective in producing permanent gains of the children. The open-air school movement should now concern itself with securing fresh air for *every* school child, not reserving it as a privilege for a few sick ones." (Chicago.)

"Many more are needed."

"Our motto is: 'An open-window classroom in every school building,' but I do not know when we shall accomplish this ideal." (Albany, N. Y.)

"We think the same amount of money will do more good if spent on a larger number of malnourished children. . . . In fact, a group of children in one of our nutrition classes has shown, over the same period and for the same length of time, a slightly better net gain" [than in the open-air classes]. (Montclair, N. J.)

"About 5 per cent of school population should be placed in open-air schools. One per cent of St. Louis population is exposed each year by new cases of 'T. B.' "

"No reliable general census of these [physically subnormal] children in all schools has been taken. We know there are others [who are not in open-air schools], but not how many." (Baltimore, Md.)

"Our work has shown that about 20 per cent [of school children] are seriously malnourished, and at least 50 per cent are below par." (Milwaukee, Wis.)

"The need is very great. Have a long waiting list for such a school." (Providence, R. I.)

"All children under five heads enumerated (pretuberculous, malnourished, anemic, cardiac, generally subnormal), if marked cases, should be in the *special class;* that is, all needing remedial treatment. The régime in regular schools should keep well children well."

"Our one open-air room was run in a very casual manner. For a few years the children were given milk during the recess period, but this was finally given up. There was no rest period. The plan was discontinued because the results did not seem to warrant the interference with the school program. During the past year we have been serving milk at the recess period, and have started a drive on health rules. The gain in weight and mental vigor has been very gratifying. At the present time we do not see the need of maintaining open-air schools."

"We have no open-air schools in our system, although our schools are so planned as to meet the most rigid State requirements for ventilation."

"I believe all schoolrooms should be open-air rooms."

"We have no tubercular children reported in our schools."

"One school would meet all needs."

"We see no striking need of open-air schools here. We aim to keep our rooms well ventilated by means of a ventilating system or by open windows."

"No need disclosed by careful physical examination."

"We have no need, according to our medical examiner."

"We feel that we could use more to advantage."

As will be seen in the above replies, there is much difference of opinion as to the need for open-air schools. This may mean that there exists a difference of opinion as to the efficacy of the open-air school to meet the needs of physically subnormal children, or it may mean a difference of opinion as to the actual number of subnormal children in the various localities.

It may not be amiss, in this connection, to refer to studies and surveys that have been made in various parts of the country.

Atlanta, Ga., found that 5.18 per cent of the children in the city were suffering from malnutrition, anemia and cardiac disease.

St. Paul, Minn. (in 1909), learned that 2.7 per cent were suffering from cardiac disease and tuberculosis.

Appleton, Wis., found that 3 per cent suffered from malnutrition.

Dr. Henry R. Hopkins, Buffalo, N. Y., chairman of the committee on open-air schools, stated (1910) that about 7 per cent of the children in that city needed open-air school treatment.

St. Louis, Mo., estimates that 5 per cent of the school population should be in open-air schools.

Milwaukee, Wis., estimates that 20 per cent of her children are malnourished and 50 per cent below par.

Boston reports a decrease in the percentage of malnourished children in the schools from 2.12 per cent in 1915–16 to 2.02 per cent in 1919–20.

Sherman C. Kingsley and F. B. Dressler, in their report on open-air schools, which is referred to a number of times in this report, estimated that from 2 to 10 per cent of the entire school population should be in open-air schools.[1]

Certain physicians have expressed opinions that estimates in regard to the number of below-par children, made several years ago, in various cities, was too high, and that the need among school children for remedial measures is less than some alarmists would lead us to suppose; but the intensive survey, in the "health demonstration" at Framingham, Mass., seems to indicate that they were too low. The examinations revealed not only that there were many more cases of active tuberculosis than had been found, and that the ratio between the number of deaths and the number of active cases is a higher one than had been previously estimated, but that the other defects and diseases were more common than had been supposed. In the same town, in an examination of 2,449 school children (1918),[1] 6.8 per cent were marked "excellent," 41.6 per cent, "fair" (which they defined as "border-line cases who were below par and required watching and corrective suggestions"), and 8.2 per cent, "poor" ("with marked signs of malnutrition, requiring medical supervision"). Following is an excerpt from the report of this survey of the physical condition of school children: —

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[1] Open-Air Schools, United States Bureau of Education, Bulletin No. 23, 1916.

> There were 2,449 children examined [in Framingham, 1918]. A scale of nutrition, similar to that of Dr. Mackenzie's of Dunfermline, was arranged, using four groupings, — excellent, good, fair, poor.
>
> Excellent, nutrition above the normal healthy child, every objective sign indicating bodily vigor with evidence of perfect metabolic processes.
>
> Good, includes those who fail to reach the excellent standard and yet are well-nourished, normal, healthy children.
>
> Fair, border-line cases, children who are below par and require watching and corrective suggestions.
>
> Poor, cases with marked signs of malnutrition, requiring medical supervision.
>
> Of the 2,449 children examined, 168, or 6.8 per cent, were excellent; 1,055, or 43 per cent, were good; 1,026, or 41.6 per cent, were fair; and 200, or 8.2 per cent, were poor.
>
> There were 408, or 16.1 per cent of all children, found to be anemic. All children classified under poor nutrition were anemic. The degree of anemia was not serious except in 4 cases.
>
> There were 1,113, or 45.2 per cent, who had enlarged cervical lymph nodes varying in size from a buckshot to a walnut. Of this number, only 30, or 1.2 per cent, were considered pathological. The majority of these minor cases are probably secondary to carious teeth.
>
> There were 206, or 12 per cent, who had defective nasal breathing; 47, or 2.3 per cent, had diseases of the eye; 22, or 1.1 per cent, had defective hearing; 133, or 6.5 per cent, had defective vision, testing 20/40 or worse; 25, or 1 per cent, had discharging ears.
>
> Heart murmurs were not uncommon, and 26, or 1 per cent, presented signs of organic heart disease.
>
> An examination of the lungs, with children stripped to the waist, showed 11 cases of pulmonary tuberculosis, and 64 other children with a history and abnormal physical signs in the chest which suggested possible tubercle, so that these children were kept under observation; 172, or 6.9 per cent, were found to have bronchitis, and 6 had pleurisy.

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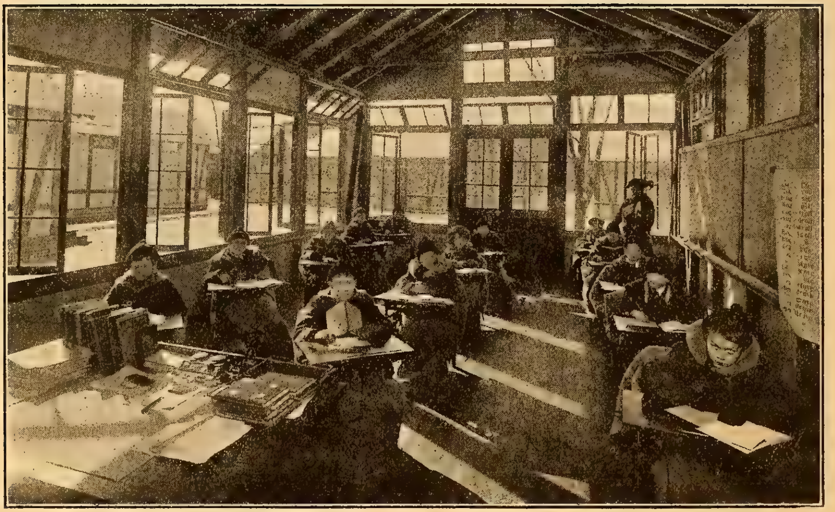
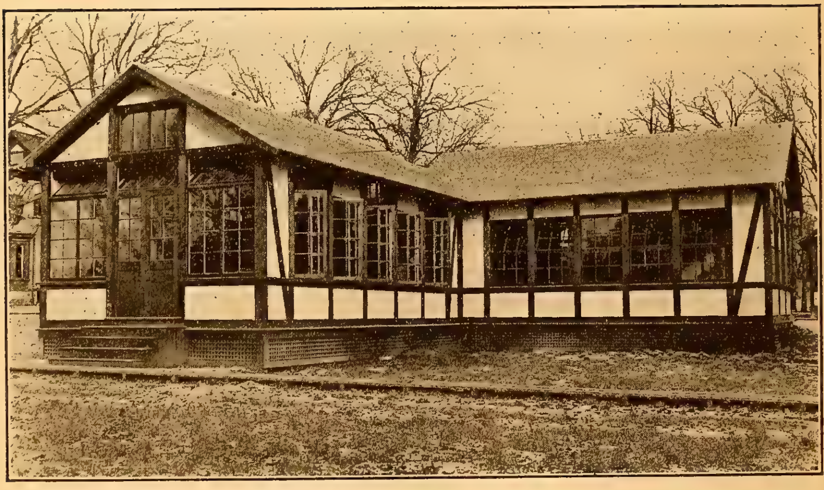
[1] Report of school committee and superintendent of schools, town of Framingham, December, 1918.

Rivers School, Brookline.



Indoor View of School.



The new combination room. The corner formed by the junction of the schoolroom (left) and rest room (right) is a southwest exposure, sunny and protected. The south schoolroom windows are always open, the west usually. The rest room windows open only at the top, as the boys' heads are on a level with the lower sills.

Skin diseases were found, impetigo contagiosa holding first place, with 29, or 1.1 per cent.

There were 1,681, or 60 per cent, who were found to have carious teeth needing urgent attention.

There were 293, or 12 per cent, who had marked postural defects; of this number, 23 had distinct lateral curves, 29 were rachitic, and 11 were post-infantile cases. Of this number, 90 were under treatment in Framingham's posture classes.

The results of this examination are quoted in detail to show what may be expected to result from an exceedingly thorough medical examination of the school children in any locality. Inasmuch as Framingham's health work is in many ways superior to the health work in most localities, it is logical to infer that the results of equally thorough examinations in other places would show equally high percentages of the same defects.

As stated above, Kingsley and Dressler, in their extended study of the problem, estimated that from 2 to 10 per cent of all children should be in open-air schools.

It may be of interest to know how many children in each city and town in Massachusetts, on a 2, 5 and 10 per cent basis, should be in open-air schools, and what number actually are in open-air schools.

TABLE NO. 1.

[This table shows the number of children in the public schools in the cities and towns of Massachusetts as reported to the State Board of Education for the year ended June 30, 1918. It further shows estimates, on a 2, 5 and 10 per cent basis, of the number of children that should be in open-air schools, and, in the last column, the number actually in open-air schools during the year 1919–20. In this table fractions of one-half or over are counted as whole numbers, and fractions of less than one-half are discarded.]

CITY OR TOWN.	Average Number of Pupils in Public Schools,[1] Year ended June 30, 1918.	2 Per Cent of Average Membership.	5 Per Cent of Average Membership.	10 Per Cent of Average Membership.	Actual Number of Pupils in Massachusetts Open-air Schools.
Abington,	978	20	49	98	–
Acton,	286	6	14	29	–
Acushnet,	440	9	22	44	–
Adams,	1,547	31	77	155	–
Agawam,	835	17	47	84	–
Alford,	44	1	2	4	–
Amesbury,	1,002	20	50	100	–
Amherst,	1,041	21	52	104	–
Andover,	920	18	46	92	28
Arlington,	3,135	63	157	314	–
Ashburnham,	315	6	16	32	–
Ashby,	146	3	7	15	–
Ashfield,	173	3	9	17	–
Ashland,	326	7	16	33	–
Athol,	1,639	33	82	164	–
Attleboro,	2,882	58	144	288	–
Auburn,	647	13	32	65	–
Avon,	410	8	21	41	–
Ayer,	507	10	25	51	–
Barnstable,	886	18	44	89	–
Barre,	574	12	29	57	–
Becket,	126	3	6	13	–
Bedford,	164	3	8	16	–
Belchertown,	400	8	20	40	–
Bellingham,	293	6	15	29	–
Belmont,	1,505	30	75	151	–
Berkley,	141	3	7	14	–
Berlin,	138	3	7	14	–
Bernardston,	149	3	7	15	–
Beverly,	4,069	81	203	407	–
Billerica,	724	14	36	72	–
Blackstone,	616	12	31	62	–
Blandford,	87	2	4	9	–
Bolton,	97	2	5	10	–
Boston,	105,573	2,111	5,279	10,557	700
Consumptives' Hospital, Mattapan,	–	–	–	–	40
Bourne,	481	10	24	48	–
Boxborough,	59	1	3	6	–
Boxford,	95	2	5	10	–
Boylston,	153	3	8	15	–
Braintree,	1,904	38	95	190	–
Brewster,	110	2	6	11	–
Bridgewater,	1,276	26	64	128	–
Brimfield,	187	4	9	19	–
Brockton,	10,330	207	516	1,033	–
Brookfield,	328	7	16	33	–
Brookline,	4,361	87	218	436	–
Rivers School (private),	–	–	–	–	138
Buckland,	232	5	12	23	–
Burlington,	112	2	6	11	–
Cambridge,	14,936	299	747	1,494	144
Private Vacation School, Shady Hill,	–	–	–	–	200
Canton,	644	13	32	64	80
Massachusetts State School for Crippled Children,	–	–	–	–	290
Carlisle,	74	1	4	7	–
Carver,	168	3	8	17	–

---

[1] Kindergarten, elementary and high.

TABLE NO. 1 — *Continued.*

CITY OR TOWN.	Average Number of Pupils in Public Schools,[1] Year ended June 30, 1918.	2 Per Cent of Average Membership.	5 Per Cent of Average Membership.	10 Per Cent of Average Membership.	Actual Number of Pupils in Massachusetts Open-air Schools.
Charlemont,	144	4	7	14	–
Charlton,	337	7	17	34	–
Chatham,	247	5	12	25	–
Chelmsford,	938	19	47	94	–
Chelsea,	7,225	145	361	723	49
Cheshire,	227	5	11	23	–
Chester,	287	6	14	29	–
Chesterfield,	80	2	4	8	–
Chicopee,	4,112	82	206	411	–
Chilmark,	16	–	1	2	–
Clarksburg,	120	2	6	12	–
Clinton,	1,673	33	84	167	–
Cohasset,	503	10	25	50	–
Colrain,	286	6	14	29	–
Concord,	1,119	22	56	112	–
Conway,	188	4	9	19	–
Cummington,	84	1	4	8	–
Dalton,	696	14	35	70	–
Dana,	81	1	4	8	–
Danvers,	1,789	36	89	179	–
Dartmouth,	1,035	21	52	104	–
Dedham,	2,320	46	116	232	–
Deerfield,	437	9	22	44	–
Dennis,	215	4	11	22	–
Dighton,	460	9	23	46	–
Douglas,	371	7	19	37	–
Dover,	123	2	6	12	–
Dracut,	743	15	37	74	–
Dudley,	430	9	22	43	–
Dunstable,	45	1	2	5	–
Duxbury,	273	5	14	27	–
East Bridgewater,	688	14	34	68	–
East Longmeadow,	432	9	22	43	–
Eastham,	71	1	4	7	–
Easthampton,	1,431	29	72	143	–
Easton,	1,021	20	51	102	–
Edgartown,	189	4	9	19	–
Egremont,	58	1	3	6	–
Enfield,	139	3	7	14	–
Erving,	229	5	11	23	–
Essex,	254	5	13	25	–
Everett,	7,228	145	361	723	–
Fairhaven,	1,141	23	57	114	–
Fall River,	15,333	307	767	1,533	–
Bay Side Hospital (private),	–	–	–	–	28
Falmouth,	689	14	34	69	–
Fitchburg,	4,689	94	234	469	–
Florida,	65	1	3	7	–
Foxborough,	625	13	31	63	–
Framingham,	2,925	59	146	293	–
Franklin,	1,195	24	60	120	–
Freetown,	243	5	12	24	–
Gardner,	2,265	45	113	227	–
Gay Head,	27	1	1	3	–
Georgetown,	262	5	13	26	–
Gill,	138	3	7	14	–
Gloucester,	4,475	90	224	448	–
Goshen,	44	1	2	4	–
Gosnold,	9	–	–	1	–
Grafton,	787	16	39	79	–
Granby,	109	2	5	10	–
Granville,	83	2	4	8	–
Great Barrington,	1,243	25	62	124	–
Greenfield,	2,350	47	118	235	–
Greenwich,	55	1	3	6	–
Groton,	370	7	19	37	–

---

[1] Kindergarten, elementary and high.

TABLE NO. 1 — *Continued.*

CITY OR TOWN.	Average Number of Pupils in Public Schools,[1] Year ended June 30, 1918.	2 Per Cent of Average Membership.	5 Per Cent of Average Membership.	10 Per Cent of Average Membership.	Actual Number of Pupils in Massachusetts Open-air Schools.
Groveland,	468	9	23	47	–
Hadley,	527	11	26	53	–
Halifax,	87	2	4	9	–
Hamilton,	326	7	16	33	–
Hampden,	111	2	6	11	–
Hancock,	63	1	3	6	–
Hanover,	309	6	15	31	–
Hanson,	278	6	14	28	–
Hardwick,	431	9	22	43	–
Harvard,	106	2	5	11	–
Harwich,	329	7	16	33	–
Hatfield,	450	9	23	45	–
Haverhill,	6,918	138	346	692	–
Hawley,	87	2	4	9	–
Heath,	52	1	3	5	–
Hingham,	885	18	45	89	–
Hinsdale,	182	4	9	18	–
Holbrook,	552	11	28	55	–
Holden,	446	9	22	45	–
Holland,	30	1	2	3	–
Holliston,	433	9	22	43	–
Holyoke,	5,759	115	288	576	–
Hopedale,	417	8	21	42	–
Hopkinton,	380	8	19	38	–
Hubbardston,	180	4	9	18	–
Hudson,	1,055	21	53	106	–
Hull,	297	6	15	30	–
Huntington,	241	5	12	24	–
Ipswich,	899	18	45	90	–
Kingston,	471	9	24	47	–
Lakeville,	180	4	9	18	–
Lancaster,	292	6	15	29	–
Lanesborough,	140	3	7	14	–
Lawrence,	9,917	198	496	992	–
Lee,	616	12	31	62	–
Leicester,	461	9	23	46	–
Lenox,	667	13	33	67	–
Leominster,	2,505	50	125	251	–
Leverett,	140	3	7	14	–
Lexington,	1,258	25	63	126	–
Leyden,	78	2	4	8	–
Lincoln,	152	3	8	15	–
Littleton,	247	6	12	25	–
Longmeadow,	321	6	16	32	–
Lowell,	11,551	231	578	1,155	17
Ludlow,	1,033	21	52	103	–
Lunenburg,	256	5	13	26	–
Lynn,	13,008	260	650	1,301	18
Normal pupils, open windows and feeding,	–	–	–	–	825
Lynnfield,	139	2	7	14	–
Malden,	6,760	135	338	676	–
Manchester,	481	10	24	48	–
Mansfield,	1,076	22	54	108	–
Marblehead,	1,316	26	66	132	–
Marion,	191	4	10	19	–
Marlborough,	1,772	35	89	177	–
Marshfield,	191	4	10	19	–
Mashpee,	32	1	2	3	–
Mattapoisett,	215	4	11	22	–
Maynard,	1,271	25	64	127	–
Medfield,	256	5	13	26	–
Medford,	5,864	117	293	586	–
Medway,	503	10	25	50	–
Melrose,	2,647	53	132	265	–
Mendon,	171	3	9	17	–

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[1] Kindergarten, elementary and high.

TABLE NO. 1 — *Continued.*

CITY OR TOWN.	Average Number of Pupils in Public Schools,[1] Year ended June 30, 1918.	2 Per Cent of Average Membership.	5 Per Cent of Average Membership.	10 Per Cent of Average Membership.	Actual Number of Pupils in Massachusetts Open-air Schools.
Merrimac,	354	7	18	35	–
Methuen,	2,650	53	133	265	–
Middleborough,	1,446	29	72	145	–
Middlefield,	50	1	3	5	–
Middleton,	130	3	7	13	–
Milford,	2,332	47	117	233	–
Millbury,	941	19	47	94	–
Millis,	278	6	14	28	–
Millville,	367	7	18	37	–
Milton,	1,459	29	73	146	–
Monroe,	28	1	1	3	–
Monson,	524	11	26	52	–
Montague,	1,266	25	63	127	–
Monterey,	55	1	3	6	–
Montgomery,	28	1	1	3	–
Mount Washington,	10	–	1	1	–
Nahant,	211	4	11	21	–
Nantucket,	502	10	25	50	–
Natick,	1,884	38	94	188	–
Needham,	1,345	27	67	135	–
New Ashford,	12	–	1	1	–
New Bedford,	13,997	280	700	1,400	43
Sassaquin Sanatorium (private),	–	–	–	–	26
New Braintree,	51	1	3	5	–
New Marlborough,	174	4	8	17	–
New Salem,	105	2	5	11	–
Newbury,	189	4	9	19	–
Newburyport,	1,816	36	91	182	–
Newton,	7,215	144	361	722	–
Normal children, open windows and feeding,	–	–	–	–	174
Norfolk,	157	3	7	16	–
North Adams,	2,818	56	141	282	–
North Andover,	1,133	23	57	113	–
North Attleborough,	1,473	29	74	147	–
North Brookfield,	303	6	15	30	–
North Reading,	166	3	8	17	–
Northampton,	2,810	56	141	281	–
Northborough,	284	6	14	28	–
Northbridge,	1,694	34	85	169	–
Northfield,	267	5	13	27	–
Norton,	411	8	21	41	–
Norwell,	203	4	10	20	–
Norwood,	2,250	45	113	225	–
Oak Bluffs,	200	4	10	20	–
Oakham,	73	1	4	7	–
Orange,	922	18	46	92	–
Orleans,	177	4	9	18	–
Otis,	80	2	4	8	–
Oxford,	621	12	31	62	–
Palmer,	1,856	37	93	186	–
Paxton,	59	1	3	6	–
Peabody,	2,688	54	134	269	–
Pelham,	72	1	4	7	–
Pembroke,	204	4	10	20	–
Pepperell,	426	9	21	43	–
Peru,	23	–	1	2	–
Petersham,	145	3	7	15	–
Phillipston,	68	1	3	7	–
Pittsfield,	6,406	128	320	641	–
Plainfield,	52	1	3	5	–
Plainville,	243	5	12	24	–
Plymouth,	2,365	47	118	237	–
Plympton,	70	1	4	7	–
Prescott,	53	1	3	5	–
Princeton,	120	2	6	12	–

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[1] Kindergarten, elementary and high.

TABLE NO. 1 — *Continued.*

CITY OR TOWN.	Average Number of Pupils in Public Schools,[1] Year ended June 30, 1918.	2 Per Cent of Average Membership.	5 Per Cent of Average Membership.	10 Per Cent of Average Membership.	Actual Number of Pupils in Massachusetts Open-air Schools.
Provincetown,	908	18	45	91	–
Quincy,	7,256	145	363	726	–
Randolph,	845	17	42	85	–
Raynham,	280	6	14	28	–
Reading,	1,342	27	67	134	–
Rehoboth,	386	8	19	39	–
Revere,	5,402	108	270	540	–
Richmond,	90	2	5	9	–
Rochester,	150	3	8	15	–
Rockland,	1,265	25	63	127	–
Rockport,	813	16	41	81	–
Rowe,	54	1	3	5	–
Rowley,	226	5	11	23	–
Royalston,	141	3	7	14	–
Russell,	187	4	9	19	–
Rutland,	199	4	10	20	–
Salem,	5,333	107	267	533	–
Salisbury,	261	5	13	26	–
Sandisfield,	87	2	4	9	–
Sandwich,	232	5	12	23	–
Saugus,	2,245	45	112	225	–
Savoy,	106	2	5	11	–
Scituate,	511	10	26	51	–
Seekonk,	525	11	26	53	–
Sharon,	444	9	22	44	–[2]
Sheffield,	264	5	13	26	–
Shelburne,	293	6	15	29	–
Sherborn,	197	4	10	20	–
Shirley,	185	4	9	19	–
Shrewsbury,	541	11	27	54	–
Shutesbury,	45	1	2	5	–
Somerset,	608	12	30	61	–
Somerville,	12,568	251	628	1,257	–
South Hadley,	997	20	50	100	–
Southampton,	105	2	5	11	–
Southborough,	308	6	15	31	–
Southbridge,	1,191	24	60	119	–
Southwick,	218	4	11	22	–
Spencer,	564	11	28	56	–
Springfield,	18,510	370	926	1,851	100
Sterling,	210	4	11	21	–
Stockbridge,	346	7	17	35	–
Stoneham,	993	20	50	99	–
Stoughton,	953	19	48	95	–
Stow,	197	4	10	20	–
Sturbridge,	208	4	10	21	–
Sudbury,	183	4	9	18	–
Sunderland,	242	5	12	24	–
Sutton,	375	8	18	38	–
Swampscott,	1,354	27	68	135	–
Swansea,	416	8	21	42	–
Taunton,	5,101	102	255	510	–
Templeton,	710	14	36	71	–
Tewksbury,	324	6	16	32	–
Tisbury,	224	4	11	22	–
Tolland,	16	–	1	2	–
Topsfield,	161	3	8	16	–
Townsend,	297	6	15	30	–
Truro,	99	2	5	10	–
Tyngsborough,	144	3	7	14	–
Tyringham,	31	1	2	3	–
Upton,	260	5	13	26	–
Uxbridge,	921	18	46	92	–
Wakefield,	2,340	47	117	234	–
Wales,	44	1	2	4	–

[1] Kindergarten, elementary and high.

[2] Exclusive of children in Sharon Sanatorium.

TABLE NO. 1 — *Concluded.*

CITY OR TOWN.	Average Number of Pupils in Public Schools,[1] Year ended June 30, 1918.	2 Per Cent of Average Membership.	5 Per Cent of Average Membership.	10 Per Cent of Average Membership.	Actual Number of Pupils in Massachusetts Open-air Schools.
Walpole,	1,203	24	60	120	-
Waltham,	3,044	61	152	304	-
Ware,	1,363	27	68	136	-
Wareham,	874	17	44	87	-
Warren,	599	12	30	60	-
Warwick,	50	1	3	5	-
Washington,	33	1	2	3	-
Watertown,	2,714	54	136	271	-
Wayland,	320	6	16	32	-
Webster,	969	19	48	97	-
Wellesley,	1,052	21	53	105	-
Wellfleet,	152	3	8	15	-
Wendell,	48	1	2	5	-
Wenham,	157	3	8	16	-
West Boylston,	265	5	13	27	-
West Bridgewater,	466	9	23	47	-
West Brookfield,	166	3	8	17	-
West Newbury,	255	5	13	26	-
West Springfield,	2,467	49	123	247	-
West Stockbridge,	140	3	7	14	-
West Tisbury,	56	1	2	6	-
Westborough,	631	13	32	63	-
Westfield,	3,085	62	154	309	-
Westford,	498	10	25	50	-
Westhampton,	54	1	2	5	-
Westminster,	242	5	12	24	-
Weston,	340	7	17	34	-
Westport,	445	9	22	45	-
Westwood,	206	4	10	21	-
Weymouth,	2,524	50	126	252	-
Whately,	189	4	9	19	-
Whitman,	1,292	26	65	129	-
Wilbraham,	252	5	13	25	-
Williamsburg,	355	7	18	36	-
Williamstown,	631	13	32	63	-
Wilmington,	528	11	26	53	-
Winchendon,	1,030	21	51	103	-
Winchester,	1,614	32	81	161	-
Windsor,	72	1	4	7	-
Winthrop,	2,339	47	117	234	-
Woburn,	2,829	57	141	283	-
Worcester,	24,680	494	1,234	2,468	22
Worthington,	52	1	3	5	-
Wrentham,	213	4	11	21	-
Yarmouth,	244	5	12	24	-
All cities and towns,	547,288	10,946	27,364	54,728	2,922
Total enrollment,	607,805	12,156	30,390	60,781	-

[1] Kindergarten, elementary and high.

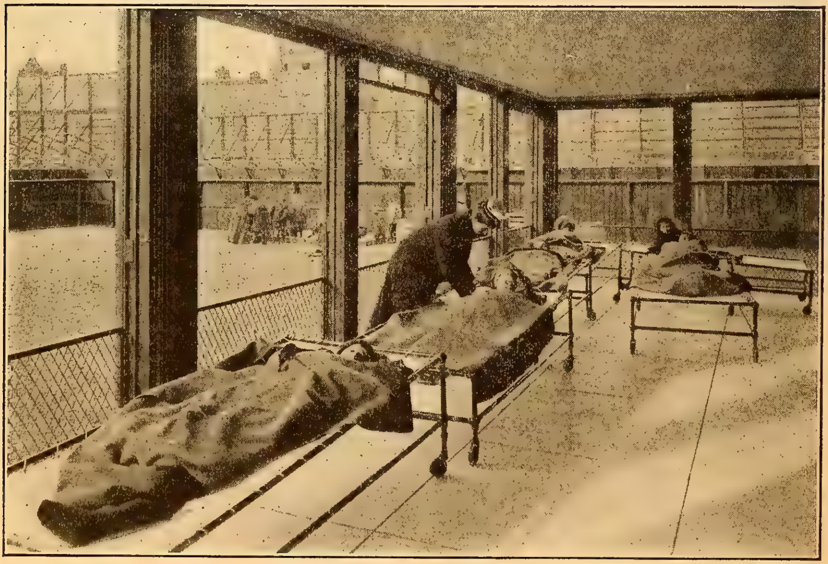
To these figures (average membership in public schools, 547,288, and total enrollment, 607,805) might be added the number in private schools during the same year, 120,367, which would increase the estimates as above on a 2, 5 and 10 per cent basis.

In Massachusetts the number of subnormal children in public open-air schools (1919–20) was 1,137; in sanatoria and hospital schools about 690, a total of 1,827 subnormal children in open-air schools.

This represents three-tenths of 1 per cent of the average membership in the public schools of Massachusetts, or just about one-sixth of the 2 per cent (the lowest) estimate of children needing remedial care.

In addition to the subnormal children in open-air schools there are 825 in Lynn and 174 in Newton, a total of 999 well children in open-window rooms, with mid-morning lunches provided. Between 150 and 200 well children are known to be in private open-air schools, with extra feedings.

In Cambridge there is also a vacation school at Fresh Pond during the seven weeks of the summer. This is a part of the public schools, and furnishes to 200 children (many of them pupils in the open-window rooms during the regular school year) facilities for a sleeping period, feeding, medical and nursing supervision, and instruction in health habits, in the open air.

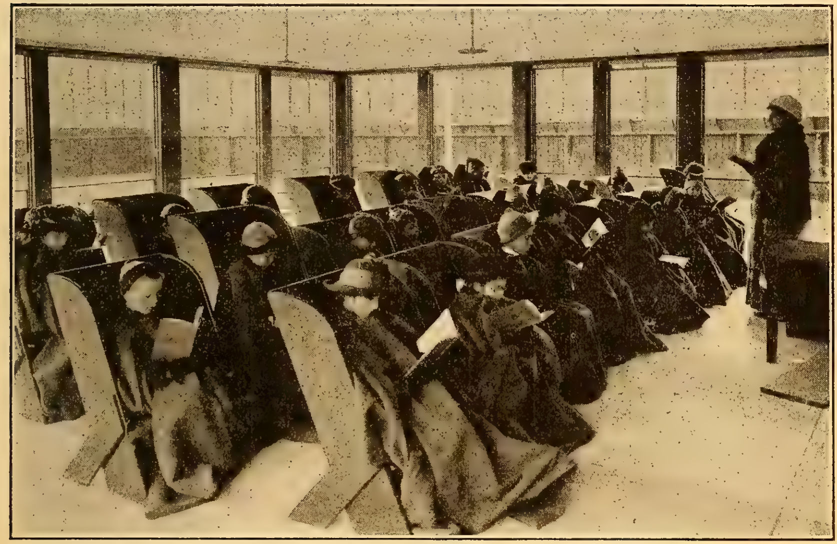


Industrial School for Crippled and Deformed Children, Boston. Open-air pavilion.

There are also camps in various cities (Springfield, Scituate, etc.) which have some features of open-air schools, especially the camp in connection with the Coolidge School for crippled children in Pittsfield. This school is a year-round school, intended especially for children crippled as a result of infantile paralysis, and might well be called a "health school." The term could also be applied to the schools at Canton for crippled children, and to the State sanatorium for tuberculosis at Westfield, as well as to the private open-air schools visited.

All the hospital and sanatoria schools are based on "health first," as might be expected, and have medical and nursing supervision, remedial measures for the restoration of the pupil's health, and a modified curriculum fitted to meet the child's needs and to give him the greatest possible benefit.

In Table No. 2 is given a tabular view of the more prominent features of the open-air school régime, such as air supply, temperature, feeding and diagnostic measures for each of the open-air public schools in the State.



Industrial School for Crippled and Deformed Children, Boston. Wing chairs used to protect children from drafts.

Table No. 2 shows that the open-window rooms in the State differ considerably in air supply, temperature, rest periods, feedings and frequency of diagnostic measures. The sanatoria and hospital schools have, of course, a definite hospital régime, with feedings, rest in bed, medical and nursing supervision, although teachers are provided by the city in New Bedford, Fall River and Boston (Mattapan), so that these three schools are a part of the school system of these cities.

TABLE No. 2.

CITY.	Number of Open-air Rooms.	Number of Pupils in Open-air Rooms.	AIR SUPPLY. Outdoor Class.	Open Pavilion.	Entire Window Space open.	Half Window Space open.	Part Window Space open.	Windows on One, Two, Three and Four Sides of Room.	TEMPERATURE. Natural Outdoor.	Unregulated; Some Heat provided.	45° F.	50° F.	55° F.	60° F.	65° F.	REST PERIODS. Number of Rest Periods.	Total Minutes' Rest per Day.	Sitting at Desk.
Andover, .	1	28			x			3		x								
Boston, .	19	700				x		?					Not below				?	x
Cambridge, .	7	544				x		?		x								
Chelsea, .	2	49			x			2		(1) x			(1) x			1	(1)30 (1)45	
Lowell, . .	1	17			x			1				x				2	30	x
Lynn, special,	1	18			x			2	x							3	40	x
Lynn, regular,	22	825				x								x				
New Bedford,	2	43				x		3				x	x			2	60	
Newton, .	5	174			1	4		(4)1 (1)2										
Springfield, .	4	100			x			2				x				1	(2)50 (2)60	
Worcester,[1] .	1	22				x		2		x						?		

Key.

a=annually.	3w=three times a week.
2a=twice a year.	m=monthly.
x=yes.	c=when called.
–=no.	p.r.n.=when necessary.
w=weekly.	

TABLE NO. 2.

REST PERIODS — *Con.*						FEEDING.							FREQUENCY OF DIAGNOSTIC MEASURES.						
Steamer Chairs.	Cots.	Regular, for All.	Regular, for Special Cases.	Irregular, for Special Cases.	Quiet enforced.	Breakfast.	Mid-morning.	Noon.	Mid-afternoon.	Close of School Day.	All Meals.	During Vacation.	Complete Physical Examination.	Visits by Doctor.	Visits by Nurse.	Weighing.	Height.	Hemoglobin Tests.	Temperature (Pulse).
							x						a	c	x	?	?	–	–
				x	x		x						2a	3w	x	2a	2a	–	?
	x	x			x		x	x					?	m c	x	m	?	–	?
	x	x			x		?	x					?	c 2w	x	m w	?	x	?
		x			x		x						?	w	x	m	?	?	?
							x	x		Special cases			?	c	x	m	?	–	?
							x						?	?	x	?	?	–	?
x		x			x		x						?	c	x	w	?	–	p.r.n.
							x						?	w	x	m	?	–	?
	x	x			x	x	x	x		?			?	c	w	?	?	–	p.r.n.
							x						?	?	x	?	?	–	?

Hospital and sanatoria schools under hospital régime.

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[1] No questionnaire returned.

The following statement gives more in detail facts concerning the open-air schools in the State: —

Andover.

John Dove School, 1 room, fifth grade, ... 28 pupils.

This may be changed to a sixth grade next year (1920-21), that the same children may continue in an open-window room so far as possible. Admission to the open-air room is dependent wholly on the wishes of the parents. This class is for both well and subnormal children.

Boston.

Nineteen rooms in 11 schools, ... About 700 pupils.

Andrews, Joshua Bates, Cushman, Bowdoin, George F. Hoar, Hillside, Lincoln, Revere, Quincy, Washington and Winchell Schools. Open-air classes must be kept up to grade.

There is also an open-air class for tuberculous children at Boston Consumptives' Hospital, Mattapan, . . About 40 pupils.

Pavilion curtained into three sections; three teachers provided by the city of Boston.

Brookline.

The open-air school at the Parsons School was discontinued. It was reported upon unfavorably in the Brookline School Survey (1917) as lacking in certain essentials, notably a rest period. The nutritional work has been continued in this school.

A private school, ... 138 pupils.

Rivers School for Boys is a true open-air school of the bungalow type. Excellent equipment and régime.

Cambridge.

Seven rooms, in Felton, Wyman, Roberts and Thorndike Schools, ... 144 pupils.

The Wyman School is entirely an open-window school. Feeding and sleep period in open air for each open-air class, and health habits taught.

Vacation open-air school at Fresh Pond, ... About 200 pupils.

This school is open for seven weeks in the summer. Many of these are the regular open-air school pupils.

A private school in small buildings at Shady Hill, . . . 80 pupils.

This is for well children. It is a co-operative school, controlled by the patrons. Grades, subprimary to third year high school.

Canton.

No public open-air schools, but the Paul Revere School at Canton Junction has unusually fine ventilation, by means of the "monitor type" of roof, similar to the roof of Ward 1 at the Massachusetts General Hospital.

Massachusetts Hospital School for Crippled Children, . . About 290 pupils.

An outdoor school. The buildings at this school also have the "monitor" roof. The children live the greater part of the time in the open air at natural temperature.

Chelsea.

Two rooms at Shurtleff and Williams Schools, one room in each school, ... 49 pupils.

These rooms have warm lunches at noon, rest period on cots on the roof, and a somewhat modified curriculum. These rooms seem to meet what is generally held to be the three essentials at very moderate expense.

Fall River.

One room at the Bay View Hospital, ... 28 pupils.

A portable school building, for children with lung tuberculosis. Hospital and day pupils. Usually studies in forenoon; handiwork in afternoon. Frequent feedings; extended rest periods. This is the only open-air school in Fall River, and pupils are seldom referred to it by the school physicians.

Lowell.

One room in the Pawtucket School, ... 17 pupils.

Another was to have been started in the Bartlett School, but has not yet been inaugurated.

Lynn.

Community School, ... 18 pupils.

One special class for malnourished and anemic children, recommended from all parts of the city. Eleven windows with disappearing sashes, on two sides of the room, make it practically an outdoor room. Several feedings. Movable seats.

The same school has 22 other rooms, ... 825 pupils.

All with partly open windows, and mid-morning lunch is served. These rooms are for the children in the regular grades.

New Bedford.

Two rooms, portable buildings, one at Donaghy School, and one at Phillips Avenue School, ... 43 pupils.

Open windows, mid-morning lunch, rest (in relays) in steamer chairs. Building heated by large stove. The children's feet were not kept warm enough. Excellent records kept. These schools are for tuberculosis suspects or arrested cases.

One room at the sanatorium, Sassaquin, ... 26 pupils.

For children with active tuberculosis.

Newton.

Five rooms in Pierce School, ... 174 pupils.

Regular grades for well children. In this school children may go from grade to grade entirely in open-air rooms if they so choose. Children looked very well, with good color. No underweight or below-par children reported in the building.

Sharon.

Sanatorium open-air school, ... About 10 pupils.

This is a private sanatorium for open-air cases of tuberculosis. School for half day only, or less.

Springfield.

Four rooms, 2 at Hooker School and 2 at Howard Street School, ... 100 pupils.

These schools have excellent quarters, with dining and rest rooms, bath facilities and fine equipment. Patrons prepare meals. Careful records kept. Children well fed, with mid-morning and hot noon lunches. Very fine schools; somewhat expensive, one would judge, as to space occupied, food served, equipment provided. Would be a little better if there were fewer stairs to climb.

Westfield.

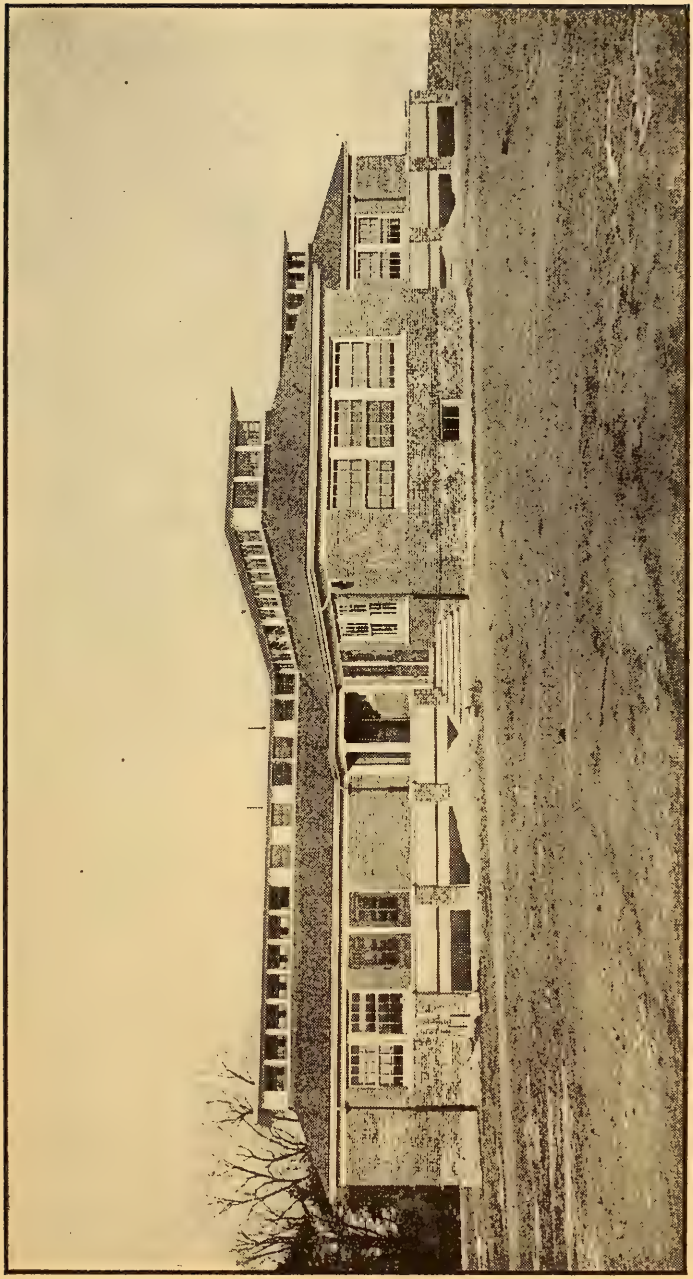
School at State sanatorium for tuberculosis, first to eighth grades, ... 283 pupils.

Schoolrooms of open-window type. Superintendent does not believe in too cold air for debilitated children. Hospital régime.

Worcester.

One room at the Lamartine School, ... 22 pupils.

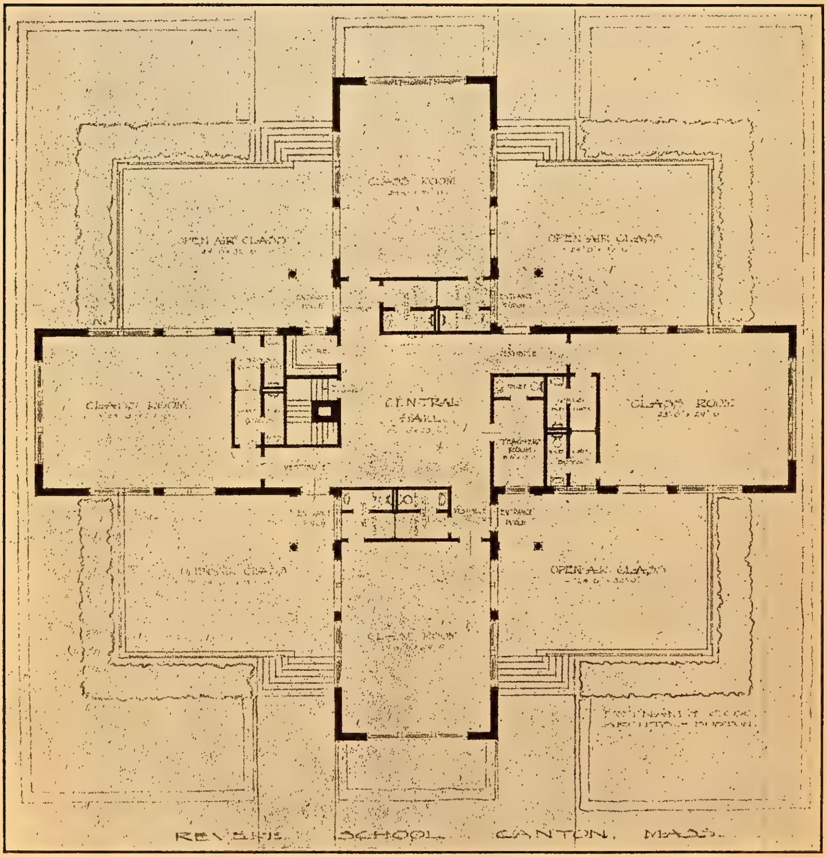
Teacher, herself, is much interested in this school, but health authorities in the schools show little interest in the matter. No regular rest period with enforced quiet. Some pupils rest heads on desks. Room provided with one cot.



Revere School, Canton.

Attleboro and Braintree. — Each planned to establish open-window rooms in September, 1920.

Reading. — Has equipped a room for retarded children (a special class required by law) with windows which open like the leaves of a book, leaving almost the entire window space open, so that it is practically an open-air room. Provisions are made for feeding. This is being used for some physically subnormal children.



Floor plan, Revere School, Canton.

Wellesley. — Keeps first-grade children out of doors for the afternoon session. For the second grade, afternoon outdoor work is optional.

Weston. — Ventilates all its schools by open windows.

Other towns are doing the same, but exact data are not available.

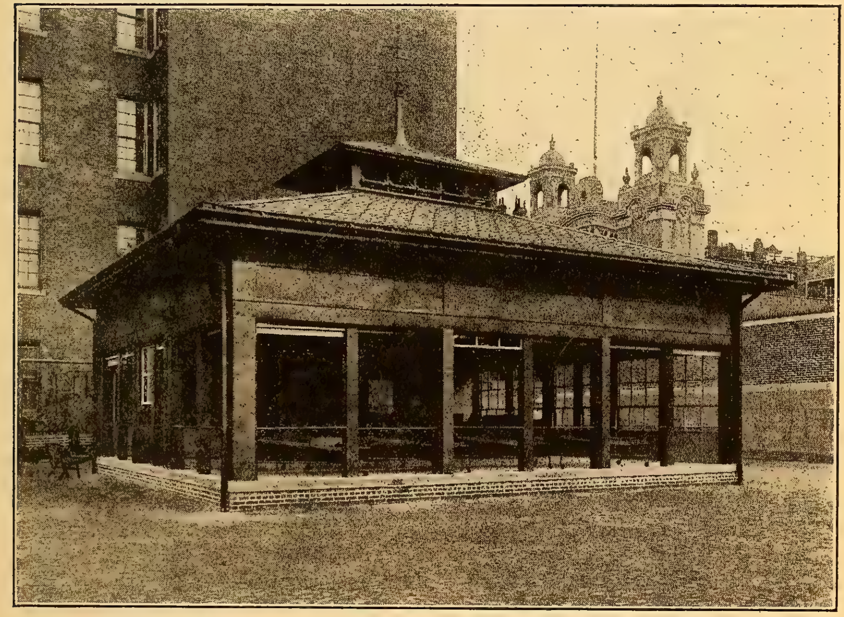
Brookline, Framingham, Pittsfield and Winchester. — Have discontinued open-air rooms.

Brookline has been referred to above.

In Framingham the exact reason was not learned, as the medical supervisor, who was responsible for this change, is no longer there and was not heard from by letter. In this town, however, other health measures (nutrition work, posture work and a health survey of school children) would indicate that here it was believed that other measures than open-air schools could effectively care for the health of school children.

In Pittsfield the teachers objected, on the ground of personal discomfort. Here, also, the school was for normal children.

In Winchester the school was for normal children, and it was ordered closed by the Fuel Commission during the war, to conserve fuel.



Industrial School for Crippled and Deformed Children, Boston. Showing "monitor roof" type of construction for open-air schools.

Pittsfield has a special private school for crippled boys, especially those crippled by infantile paralysis. This has a camp in connection with it, and much living and working out of doors. It is a year-round school, and a pupil must agree to remain a year if he comes. It is intended that provision shall be made, also, for crippled girls. This school (the Coolidge School) was opened in 1918.

To any one interested in the construction of open-air schools, the May, 1918, catalogue of the Park School, a private school in Baltimore, Md., will repay study. The ground plan is unusual, the window space ample, and windows are in three sections, swinging outward, so that the entire window space may be opened. Newspaper clippings, and verbal reports of visitors to this school, give the impression that it is an excellent and unusual school.

THE ESSENTIAL RÉGIME OF AN OPEN-AIR SCHOOL.

Opinions differ as to what are the essentials of the open-air school régime. We quote below from various sources: —

"Fresh air, rest and food are three factors which have led to the success of the open-air school. No one of these three can be dispensed with." (Brookline Educational Survey, 1917, published by Brookline School Committee.)

"There are three essentials for a successful open-air school. These are fresh air, warm clothing and good food. No one of these can be omitted without harmful results to the pupils. The clothing should consist of warm outer wraps, head coverings and some method of keeping the feet warm. . . . It is essential that children in open-air classes should be provided with extra amounts of food. Food provides fuel for the body, and is rapidly turned into heat. If children are not given extra food they are apt to become unduly chilled, and will not benefit by the open-air class work. It is also important that this food should be hot. Cold lunches, even though appetizing and nourishing, do not seem to be effective." (Healthful Schools, Ayres, Williams and Wood, 1918.)

"The important factors in the success of this work (open-air classes) are fresh, cool air, light, food, correction of physical defects that retard growth and development, and proper hygienic living conditions. These are all provided for during the school session, but it must be borne in mind that the children are in school only five hours a day on school days, and that we have about 190 school days a year. During the school hours the children are completely under control, and receive the care they require." (Open-air Classes, Leopold Marcus, M.D., Supervising Inspector of Open-air Classes, Bureau of Child Hygiene, Department of Health, New York.)

The Forest School, Toronto, Can. (an outdoor school), considers the essentials to be "ten hours of the twenty-four in the open; food; sleep; proper clothing; personal cleanliness." The rest period in this school is on cots, under the trees.

"I have found that in a few [open-air] schools, there is a lack of medical supervision. . . . I do not believe that even the ordinary school should be without regular medical inspection, and when it becomes an open-air school, such supervision should never be dispensed with. Careful comparisons of the weights, gain in hemoglobin, and gain in mental power of the children, should be recorded and filed for comparison." (John V. VanPelt, A.D.G., A.L.A., The Health of School Children, Bureau of Education, 1915.)

The teachers at the Ethical Culture School, New York City, believe that play constitutes "perhaps the largest single factor in the development of the open-air school children." Only once a day in this school does one lesson follow another without the intervention of recess or lunch and rest period, and then there is a five-minute intermission devoted to vigorous play.

The Cambridge Anti-Tuberculosis Association gives the following as the "indispensable requirements for a successful open-air school:" (1) "A suitable plant, preferably with attractive out-of-door surroundings, available for the use of the school. This should include adequate kitchen facilities and an airy hall for rest and play on stormy days; if possible, shower baths or a pool. (2) Socially minded teachers. (3) Socially minded public health nurses. (4) Intelligent selection of children; careful physical examination, and a plan for the correction of defects found. (5) The education of home folks, as well as of the school children, with insistence upon home co-operation if children are to remain in school. (6) A well-selected menu, including a pint of milk per day per child."

Children in Preventorium, Albany, N. Y.

"Experiments such as that at Montclair . . . indicate . . . that we have yet to learn what it is about the usual open-air class which functions so effectively. Should success be attributed to low temperature, temperature changes, humidity, breezes, special feeding, sleep and rest periods, ungraded classes, picked teachers, or to a combination of these elements?" (Ayres, Williams and Wood, 1918, Healthful Schools, p. 266.)

The place of physical exercise in the curriculum of the open-air school has been much discussed. Some physicians go so far as to forbid any form of violent exercise for children in an open-air class for subnormal children; others believe strongly in properly supervised and adapted exercises. The Swedish remedial exercises are frequently used and highly recommended by teachers in the foreign schools. Breathing exercises are sometimes given with the children stripped to the waist, so that the instructor can observe the formation of the chest and action of the lungs.

Most of the authorities quoted include fresh air, at a lower temperature than in the regular indoor schoolroom, feeding and rest. There are differences of opinion and practice, however, in respect to each of these essentials.

Fresh Air. — New York City lists its open-air classes under three heads: —

(*a*) *Outdoor Classes.* — For pulmonary tuberculosis cases. Located at day camps and sanatoria. Supervised by the Bureau of Preventable Diseases of the Department of Health and private organizations.

(*b*) *Open-air Classes.* — For children exposed to tuberculosis at home or where there has been a death from this disease; arrested cases of tuberculosis; malnourished children; children who become tired easily or show languor or fatigue before the end of the day; those suffering from nervous diseases except chorea; children frequently absent because of colds, bronchitis, etc.; cardiac cases recommended by private physicians as being proper cases for these classes.

(*c*) *Open-window Classes.* — Normal pupils. Windows kept open. Rooms maintained at temperature ranging from 50° to 65°. These classes organized or discontinued at discretion of principal. No special supervision over these classes.

Massachusetts has no outdoor classes in the public schools. The hospital school at Mattapan, for children with pulmonary tuberculosis, and the State school for crippled children at Canton are the only ones found of this type.

The schools maintained in this State for incipient cases of tuberculosis in hospitals and sanatoria (Fall River, New Bedford, Sharon and Westfield) are of the open-window type. The classes for the other types, listed above under (*b*), for which New York provides open-air classes, are in Massachusetts all open-window rooms. These are quite different in different localities, however, as to the amount of window space which may be opened, and the number of sides of the room on which there are windows. The room for the special open-air class in Lynn has windows on two sides, east and south exposures, with eleven windows all with disappearing sashes, so that the entire window space is left open. In Chelsea and Springfield there are windows on two sides, east and south exposure, with windows which fold or turn on a pivot, leaving almost the entire window space open. In Andover the open-window room has windows on three sides. These windows are in three sections each, one above the other, and are hinged to lift up, leaving the entire window open if all sections are open. On the day the school was visited many of them were not open. In some places portable schools are used, with windows on either two or three sides, and in other places the windows are sometimes on two sides and sometimes on only one side. Most of the windows are ordinary ones that slide up and down, leaving only half the window space open.

Open-air school, Westfield.

In a few places a screen of cheesecloth covered the window space; sometimes this screen was on a frame hinged at the bottom, leaning inward at the top, to deflect the air current upward above the children's heads.

In the "American School Board Journal," April, 1920, there was an article by C. A. Eddy on "Open Window *versus* Mechanical Ventilation," regarding a test made in the schools of Detroit, which proved to the author's satisfaction that mechanical ventilation is superior to open-window ventilation. In the Detroit experiment, which the author terms "a common-sense experiment," one room in a building with mechanical ventilation (and probably very good mechanical ventilation) was chosen for the experiment. It was not an open-air school, as that term is understood. It was for normal children. There was evidently no provision for extra clothing or feeding, — indispensable factors with open windows and the resulting lower temperature. The windows were covered with cheesecloth screens. Tests, which were made of the air in this room and in other rooms in the building, showed the air in the open-window room to contain more dust than that in the other rooms. The teachers disliked the drafts and dust, and asked that the experiment be discontinued. The author of the article referred to above therefore concludes that while pure fresh air is indispensable to health, it can be better supplied by mechanical ventilation than by open windows.

The Detroit Board of Education, when interrogated with reference to this experiment, wrote as follows: —

> Something over a year ago an "open-window" experiment was carried on in Angell School, Detroit, but proved in every way unsatisfactory. I regret very much the necessity of making this statement, because I am strongly in favor of direct, or open-window, ventilation. The failure was probably due to the fact that conditions were not properly controlled. The report coming to me stated that, within the limits of a single hour, the temperature sometimes varied 30 or 40 degrees.
>
> The above statements do not in any way apply to our open-air schools for the anemic and pretubercular children. At various points in the city we have such schools, and they have proved manifestly successful.

There have been statements made that air coming into a room through mechanical systems of ventilation is "deionized," whatever that may mean. Dr. Winslow has stated, as a result of experiments made, that it is not the oxygen content of the air that matters, nor the temperature, but whether or not the air is in motion; in other words, that the effect upon the skin is of far greater importance, both for comfort and health, than we have imagined. A layer of air surrounds the body like a sheath, preventing evaporation of moisture and radiation of heat. Air currents break up this layer of air surrounding the body. He stated, in conversation with the writer, that one of the advantages of open-window schoolrooms was the constant motion of the air blowing through the room. There should be constant currents of air, and the children should be protected by sufficient clothing.

Temperature. — Opinions vary, and practice varies, with regard to the temperature of open-air classes. The State school at Canton has found the natural temperature most beneficial to children who are sufferers from bone tuberculosis. The Westfield Sanatorium, on the other hand, finds that the children "do their best work . . . when the room temperature is between 45 and 58 degrees. Children sitting in a schoolroom having a temperature below freezing have to be wrapped up in clumsy bags or blankets, their fingers numbed and their minds dulled from cold. . . . A reasonable provision for both fresh air and artificial heat is the rational solution."

New York City has "found that the cold is a decided advantage, and that no temperature is too low, provided the children are properly protected by their clothing and their sleeping bags. The greatest increase in weight is always made during the colder weather. With the first return of warm weather the increase of weight is retarded. This is, to a great extent, because of the influence of the temperature on the appetites of these children. Their appetites are always better in colder weather."

Children of the "Preventorium School" for Incipient Cases of Tuberculosis, at Schenectady, N. Y
The Junior Red Cross co-operates in maintaining the school.

In the Preventorium, Albany, N. Y., heat is turned on before school begins, but shut off entirely, and windows are opened wide, during school hours.

In Chicago the newer open-air schools are not supplied with extra clothing, and the temperature is kept up to 65 degrees. The hope was expressed that the extra clothing will soon be forthcoming, and the former lower temperature of Chicago open-air schools be re-established at 50° F.

Louisville, Ky., and Baltimore, Md., do not provide heat. Providence, R. I., and Milwaukee, Wis., furnish some heat, but the temperature varies with the outside temperature. St. Louis, Mo. (the Taussig Open-Air School), does not allow the temperature to go below 45 degrees, and Battle Creek, Mich. (Prospect Park Open-Air School), maintains a temperature of 55 degrees on dry days, and 60 degrees on damp, cold days.

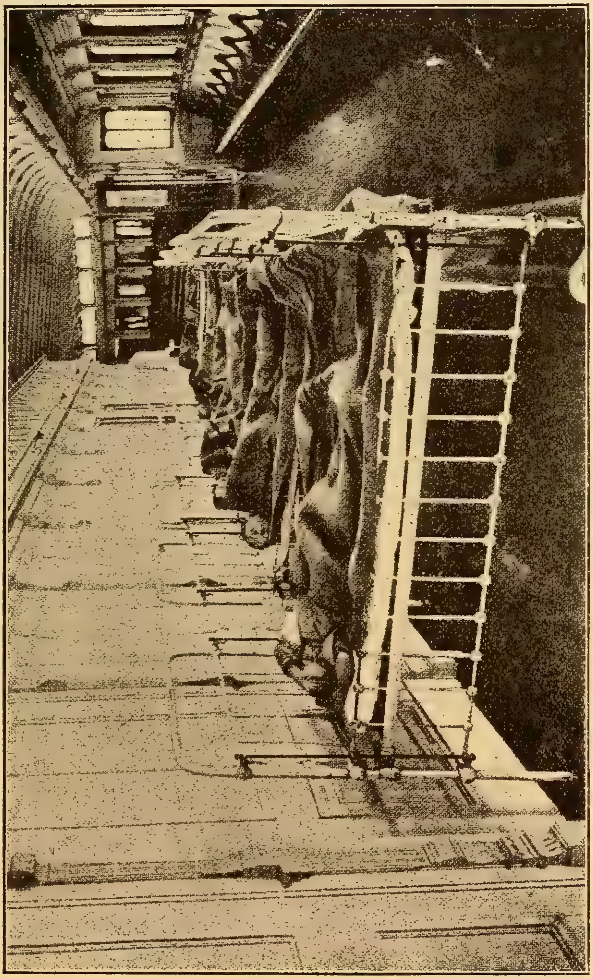
In the open-air schools of Massachusetts the temperature is regulated to 60 degrees in Fall River, and in the open-window rooms for normal children in Lynn; 55 degrees at the Donaghy School in New Bedford, and in the Shurtleff School, Chelsea; Boston schools are not to go below 55 degrees; 50 degrees at the Hooker School, Springfield, the Phillips Avenue School, New Bedford, and the Pawtucket School, Lowell. Some heat is furnished, but the temperature varies with the outside temperature in Cambridge, Lynn (the special class), Worcester, Sassaquin Sanatorium School in New Bedford, and the Williams School, Chelsea. At Sassaquin Sanatorium no thermometers are allowed.

Feeding. — In the matter of feeding, as in the matter of temperature, there is great latitude. Aside from the hospital and sanatoria schools in Massachusetts, which, of course, provide all meals, Springfield provides its open-air classes with three lunches, sometimes four; Lynn, for the special class of below-par children, two lunches, sometimes three; Cambridge provides two feedings; a mid-morning lunch only is furnished in Andover, Boston, Lowell, Lynn (22 rooms of well children), Newton (open-air rooms and other rooms) and Worcester.

Where more than one feeding is provided, one meal is a substantial noon lunch. This is provided entirely by the city in Springfield, and in Chelsea is supplemented by food brought from home (*e.g.*, a potato). The mid-morning lunch is usually milk, from 4 to 8 ounces; hot cocoa, about 6 ounces usually; or a cup of hot soup, with two or three crackers. Some teachers think that milk proves to be by far the best food for this luncheon; others think there is greater advantage in having a hot drink, and therefore they furnish cocoa in cold weather.

In other States some schools base the amount of food furnished on a definite number of calories. Hospital schools prescribe extra food and extra times of feeding to suit individual requirements. A few persons were found who disbelieved altogether in the feeding of school children. However, there was more unanimity of opinion on this point than on another, held by many to be equally essential, — that of the rest period.

Rest Period. — The statement made by one nurse, that "if a child is sick enough to go to bed he should stay at home," would seem to indicate an opinion that a city's responsibility for educating a child ceases if, with the help of a mid-morning lunch (for which he pays) and open-window ventilation, he cannot keep up with his classes — if, in other words, he requires his day to be broken by a rest period.



New York ferry boats have been taken over by the board of health and refitted to meet the needs of tubercular children. Rest hour in the cabin of the "Southfield", New York City, during very stormy weather.

Fatigue is considered by many a fruitful cause of malnutrition. It was to *prevent* fatigue that New York City changed the rest period in the open-air classes from afternoon to forenoon. This, at first, met with considerable opposition from principals, teachers and some of the pupils. After three years' trial of this arrangement of two hours of work, then two hours of rest (and luncheon), and two hours more of work, they report as follows: —

> We have the long rest period before lunch, as we have found that if we stop the school work after two hours, to give the children a long rest, they do not become overfatigued. They recuperate rapidly, and by lunch time are fully back to their normal condition; and furthermore, not being fatigued, they have good appetites and derive the benefits which accrue from eating large meals.

In this State, Cambridge, Chelsea and Springfield provide cots and blankets for a rest period in the open air. New Bedford provides steamer chairs, and the children rest every day, in relays, as there are fewer chairs than children. In the hospital schools the children rest during the day on beds in the ward. In most of the other open-air classes in the State the pupils drop their heads upon their desks for from five to fifteen minutes, or do not rest at all. The length of the rest period in the public schools varies from five to sixty minutes.

Frequency of Diagnostic Measures. — Weighing is done in all the open-air classes: weekly in Springfield, New Bedford, Fall River and in the Williams School, Chelsea; monthly in Newton, Lynn, Lowell, Shurtleff School, Chelsea, and Cambridge; twice a year in Boston. Visits by the school physician seem to be at irregular intervals in most places, but three times a week in Boston. Hemoglobin blood tests, which are recommended in many books on open-air schools, appear to be done nowhere but in Chelsea. In most of the open-air classes effort is being made by the school nurse to see that defects in the pupils (adenoids, carious teeth, etc.) are remedied, except in Andover, which town seemed not to be particularly interested in this phase of the situation. A dental clinic once begun, and apparently not a success, seems to have dampened their ardor for all time.

Remedial Measures undertaken for Subnormal Children not in Special Classes, and Features of the Open-air School Régime introduced into the Regular Schools with a View to keeping Well Children Well.

While in many places a ventilating system, once installed, is still regarded with superstitious awe, and janitors are still held in reverence, there is a marked change in attitude in many other localities. In very many schools the windows are kept partly or wholly open all the time, *e.g.*, the schools in Weston and the Edward Tileston School in Mattapan. In Wellesley the afternoon sessions for the first grade (optional for the second grade) are held in the open air, with nature study, exercises, play, stories and study.

Nutritional work has received considerable impetus during the past few years. In many schools (as in Newton, the Cary School in Chelsea, and others of which I have no definite information) a mid-morning lunch of milk or cocoa is provided for well pupils. Hot noon lunches are served in many schools, both elementary and high, or a supplementary hot drink is provided to eat with the lunch brought from home.

Children are weighed regularly in many schools, although the interval between weighings varies from once a month to once a year. In some schools this record is placed with the regular report for scholarship on the monthly report card to be sent home. This step was inaugurated in Boston recently, but met with opposition on the part of some school physicians, and was discontinued. In most places children are weighed with all clothing, including shoes, and no deduction made for weight of clothing.

A teacher in the open-air schools in Providence, R. I., reports that children ask not to be weighed on Monday morning, as they have learned from experience that they lose weight over Saturday and Sunday. The teacher attributed this loss of weight not only to the less nourishing food at home, but to the work the children do at home, and the greater activity throughout the day, without rest.

There is little information at hand to indicate to what extent the open-air schools have had an effect upon physical examinations and health supervision in the regular schools. In a few places it apparently has materially affected the procedure in these matters. The extent and thoroughness of the physical examination vary tremendously among different groups, even in the same city.

An Evaluation of the Results obtained in the Open-air Schools.

As has been previously stated, any evaluation of results has been difficult because of different standards and methods of measuring results in the different cities. Weight gains are not wholly reliable when a child is weighed in summer clothing, then in winter clothing, and again in summer clothing; at one time in sneakers, at another in heavy shoes, and perhaps with marbles in his pockets. The only reliable figures would be the weight with exactly the same clothing each time, such as a cotton slip which is worn in some places. However, it is very significant when a child shows a gain even after he has changed from heavy weight to light weight clothing, as is sometimes the case; and the changes in clothing are not particularly marked from week to week, while the changes in weight frequently are notably so.

A number of cities in other States replied to the questionnaire, in regard to average gains in weight, as follows: —

Battle Creek, Mich., reports an average gain of 5 pounds per pupil per year in the open-air schools.

Louisville, Ky., reports that the open-air pupils gained from 3 to 14½ pounds per year, and the average gains for four years compare as follows: —

	Pounds.
1916–17,	4.292
1917–18,	5.460
1918–19,	6.124
1919–20 (from September to May),	9.973

Milwaukee, Wis., reports an average monthly gain of 10½ ounces for girls and 14½ ounces for boys; St. Louis, Mo., an average monthly gain of .66 pound, or 10.56 ounces for boys, and .9 pound, or 14.4 ounces for girls.

Baltimore reports the average monthly gain, in regular attendance, from 1 to 3 pounds.

Averaging the findings of Holt, Boas and the Chicago Board of Education, the normal gain in weight per child per month should be, for boys, .55 pound (8.8 ounces), and for girls, .56 pound (8.96 ounces).

Incomplete data were obtained from Massachusetts open-air schools in reply to this question in the schedule in respect to gains in weight. Following is the information received: —

PLACE.	Average Monthly Gain (Ounces).
Boston (all open-air classes),	6.8
Cambridge:	
Roberts School,	13.43
In this school, 39 children gained 18 ounces per month.	
Wyman School,	5.21
Greatest gain, 15 ounces per month.	
Chelsea:	
Shurtleff School,	9.9
One pupil gained 24 ounces per month.	
Williams School,	9.0
One pupil gained 23 ounces per month.	
Lynn:	
Community School, special class,	12.0
Three pupils gained 15 ounces per month.	
New Bedford:	
Phillips Avenue School (December to May 5),	9.0
Greatest individual gain, 18 ounces.	
Donaghy School,	7.0
One pupil gained 14 ounces per month.	
Springfield:	
Hooker School (this average is for the 27 children in school for the full year),	9.4
One pupil gained 15 pounds, 1 ounce, during the year. One pupil gained 12 pounds, during the year. One pupil gained 10 pounds, 14 ounces, during the year. One pupil gained 10 pounds, 6 ounces, during the year.	

In answer to the question in regard to other improvements noted, 9 schools replied as follows: —

Nine schools noted improvement in color.
Nine schools noted improvement in alertness.
Nine schools noted improvement in general appearance.
Nine schools noted improvement in mentality.
Eight schools noted improvement in disposition.
Nine schools noted improvement in appetite.
Eight schools noted improvement in resistance to colds.
Nine schools noted improvement in nervous symptoms.
Three schools noted improvement in cardiac conditions.
Four schools noted improvement in bronchitis.

One school stated that symptoms from adenoids and tonsils tended to disappear; one school reported that they did not; and several that tonsils had been removed. One school noted that attendance in open-air schools was good. One mentioned the fact that children cultivated a taste for proper foods and carried the taste for such foods into the home. One teacher mentioned the good effect on the children of eating together and learning table manners.

The information obtained with reference to costs of open-air schools was too meager to be of value.

SUMMARY.

It is apparent that there is in Massachusetts a very large number of subnormal children who would be suitable candidates for admission to open-air classes. Just how many could be determined only by a survey such as was undertaken in Framingham. The making of such a survey is strongly recommended to each city and town.

There can be no doubt, from the evidence submitted, that the open-air school régime, *at its best*, produces good results. Careful experimental studies should be made, under known conditions, with carefully kept records of comparable data, in order to determine the relative importance of the various features of the open-air school régime, and to standardize the methods of procedure and the minimum expenditure necessary to obtain the desired ends.

A trend towards establishing in all of the regular schools the more important features of the open-air school régime is clearly indicated, notably in Framingham, Winchester and Brookline, where open-air classes have been abandoned on the theory that the improvement of conditions in the regular schools renders them largely unnecessary. The extending of better procedure in regard to ventilation, feeding, rest and remedial measures to all children is certainly to be encouraged, but a careful scrutiny of conditions undoubtedly indicates that there are in every community a certain number of children so far below par that they require special attention and more intensive remedial treatment than is necessary for normal or slightly subnormal children. It is unquestionably good public policy to go to considerable expense to save these children and restore them to a condition of economic efficiency, not only for their own happiness, but for their potential wealth-producing power in the community.

Too often remedial work of this character is looked upon as charity. Reference to recent literature in regard to remedial work for soldiers disabled in the late war should convince the most skeptical of the soundness of the policy of remedial work.

A study entitled "Sickness Insurance or Sickness Prevention," made by the National Industrial Conference Board, an association of manufacturers, points out conclusively that sickness prevention is far preferable to any kind of sickness insurance, and more economical in the industrial world. It is stated that "the annual wage loss for 40,000,000 workers from sickness may be conservatively estimated at from $500,000,000 to $750,000,000" in the United States; "furthermore, it should be appreciated that industry is concerned not alone with the sickness and physical disability of workers actually employed. . . . It is from the infants of the present that the workers of the future must be recruited. Infant conservation is but another phase of industrial preparedness. Yet of all deaths in the United States, those of infants under one year of age comprise one-sixth, and fully one-half of these are held to be preventable. In addition, a vast number of defects and ills which impair efficiency later in life have their origin in early childhood, and could be prevented by proper treatment at that time." In the city of Berkeley, Cal., a survey was made of all the children in a particular district, with reference to their physical and mental conditions and need of remedial measures. The needs of each child, on the basis of this thorough survey, are receiving appropriate attention.

The following is quoted from an article in "The Survey" for Oct. 23, 1920, by Beatrice Wilmans, principal, Hawthorne School, Berkeley, Cal.: —

> For some time there has been developing within the minds of many of us who are concerned directly with the education of children a certain uneasy conscience in regard to our "hit-or-miss," "trust-to-luck" methods of procedure in the schools. Of late this uneasy conscience has even gone so far as to suggest that it might be wise and even necessary to thoroughly investigate

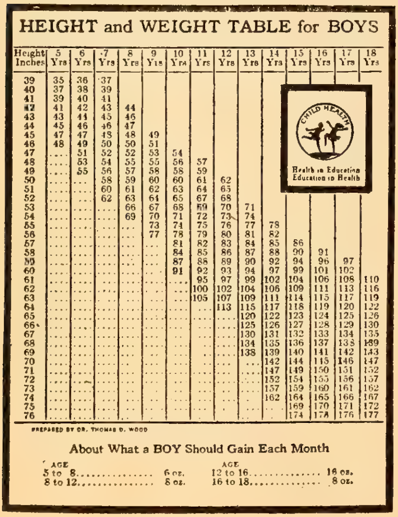
each one of the children under one's care, and find out, if possible, just what ought to be done with him and for him. One group of school people in a western city were driven by suggestions of this sort to attempt an intensive study of the children in their particular district. The pupils were examined grade by grade, beginning with the physical examination, which included height, weight, general appearance, posture, gait and nutrition. Medical examination of the eyes, ears, nose, throat, teeth, skin, heart, lungs and abdomen was followed by orthopedic and laboratory examinations. Then came the neurological study (extremely important), the psychological, including group and individual tests, in which the Otis, Binet (standard revision) and Pintner devices were used, and the psychiatric investigation into personality and behavior, and an intensive anthropological study. One of the most interesting phases of the work is the teacher's rating of each child on the basis of physical qualities, intelligence, leadership and personal qualities. The findings of the survey are being constantly put to actual, practical use.

In such a comprehensive program the essential features of the open-air school régime (abundance of fresh air, lower temperature, feeding, rest and frequent and thorough diagnosis, with appropriate remedial measures, physical and mental) must have a large place. Undoubtedly, the conditions revealed by the survey must determine what particular remedial measures should be most stressed in a given locality, and, as stated above, there remains to be determined definitely, by experimental studies, the relative values and best technique of the several features of the open-air school régime.

In the hope that a definite experimental study may be made, over a definite period of time, of the open-air schools in the State, and as an aid thereto, suggested record forms, and a form for physical examination, are appended hereto.

Suggested Record Forms for Physical Examination, History and Record of Progress, for an Experimental Study of Open-air Schools.

A table giving height and weight, for both girls and boys, follows. It is requested that this table should be used, rather than others which have been variously published, in order that standardized data may be obtained for comparison.



HEIGHT and WEIGHT TABLE for BOYS

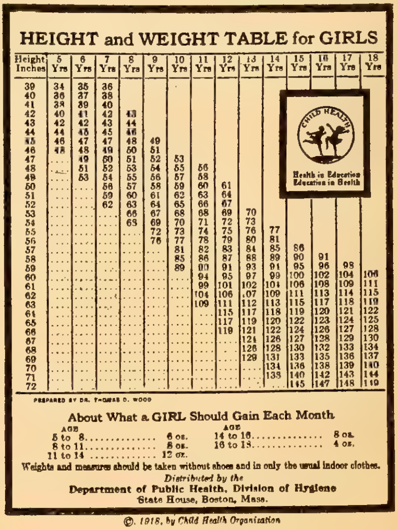
Height Inches	5 Yrs	6 Yrs	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs
39	35	36	37											
40	37	38	39											
41	39	40	41											
42	41	42	43	44										
43	43	44	45	46										
44	45	46	46	47										
45	47	47	48	48	49									
46	48	49	50	50	51									
47	....	51	52	52	53	54								
48	....	53	54	55	55	56	57							
49	....	55	56	57	58	58	59							
50	....	....	58	59	60	60	61	62						
51	....	....	60	61	62	63	64	65						
52	....	....	62	63	64	65	67	68						
53	....	....	....	66	67	68	69	70	71					
54	....	....	....	69	70	71	72	73	74					
55	....	....	....	....	73	74	75	76	77	78				
56	....	....	....	....	77	78	79	80	81	82				
57	....	....	....	....	....	81	82	83	84	85	86			
58	....	....	....	....	....	84	85	86	87	88	90	91		
59	....	....	....	....	....	87	88	89	90	92	94	96	97	
60	....	....	....	....	....	91	92	93	94	97	99	101	102	
61	....	....	....	....	....	....	95	97	99	102	104	106	108	110
62	....	....	....	....	....	....	100	102	104	106	109	111	113	116
63	....	....	....	....	....	....	105	107	109	111	114	115	117	119
64	....	....	....	....	....	....	....	113	115	117	118	119	120	122
65	....	....	....	....	....	....	....	....	120	122	123	124	125	126
66	....	....	....	....	....	....	....	....	125	126	127	128	129	130
67	....	....	....	....	....	....	....	....	130	131	132	133	134	135
68	....	....	....	....	....	....	....	....	134	135	136	137	138	139
69	....	....	....	....	....	....	....	....	138	139	140	141	142	143
70	....	....	....	....	....	....	....	....	....	142	144	145	146	147
71	....	....	....	....	....	....	....	....	....	147	149	150	151	152
72	....	....	....	....	....	....	....	....	....	152	154	155	156	157
73	....	....	....	....	....	....	....	....	....	157	159	160	161	162
74	....	....	....	....	....	....	....	....	....	162	164	165	166	167
75	....	....	....	....	....	....	....	....	....	....	169	170	171	172
76	....	....	....	....	....	....	....	....	....	....	174	178	176	177

Health in Education
Education in Health

PREPARED BY DR. THOMAS D. WOOD

About What a BOY Should Gain Each Month

AGE		AGE	
5 to 8	6 oz.	12 to 16	16 oz.
8 to 12	8 oz.	16 to 18	8 oz.



HEIGHT and WEIGHT TABLE for GIRLS

Height Inches	5 Yrs	6 Yrs	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs
39	34	35	36											
40	36	37	38											
41	38	39	40											
42	40	41	42	43										
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Health in Education
Education in Health

PREPARED BY DR. THOMAS D. WOOD

About What a GIRL Should Gain Each Month

AGE		AGE	
5 to 8	6 oz.	14 to 16	8 oz.
8 to 11	8 oz.	16 to 18	4 oz.
11 to 14	12 oz.		

Weights and measures should be taken without shoes and in only the usual indoor clothes.

Distributed by the
Department of Public Health, Division of Hygiene
State House, Boston, Mass.

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The table above is the one published by the Child Health Organization, New York City.

Record Card.

Showing Conditions in Schoolroom and Results to Pupil.

Name: School: Grade: City: .

Age: Sex: Date record begun: Date record finished:

Underline following facts as they apply.

Type of School.

Open-air; open-window; area unobstructed; closed windows.

Exposure: N. S. E. W. Number of windows.

Temperature of room kept at . Breezes blow through room. Cheesecloth covers window openings.

Ventilating apparatus is about years old.

Graded; ungraded. School day from to .

Intermission from to . Rest period from to .

Rest on cots; beds; steamer chairs; at desks; out of doors; on roof; in open-window room; in regular schoolroom.

School equipped with bath; showers; dental clinic.

Extra feeding at school: breakfast; milk; cocoa; soup; crackers at ; lunch; hot; cold; lunch in afternoon.

Special remedial work for this pupil:
Recommended: Extra feeding; posture work; operation (T. and A.).
Performed:

Remarks:

Weight Record.

Date.	Age (Yrs. Mos.).	Weight (Lbs.).	Date.	Age (Yrs. Mos.).	Weight (Lbs.).	Date.	Age (Yrs. Mos.).	Weight (Lbs.).

If possible, weigh child without clothing, except for a slip. If weighed with clothing, remove shoes and estimate weight of balance of clothing; record weight and add "less ounces."

Height: At entrance (date:) in. Hemoglobin test: At entrance (date:)
Final (date:) in. Final (date:)

General observations: At beginning; during term; and at end, with reference to color, colds, cough, mental progress, disposition, absence from disease, general appearance.

Date: Attendance and absences:

Underline defects as cited by physician during progress of examination.

Diagnosis: Sex: Color: Age: years, months.

Inspection: Bright; dull; nervous; apathetic. Pallor. Fatigue.

Mouth: Normal; open. Cough. Mucous membrane: Normal; pale; cyanotic.
Lips: red; pale; herpes; fissures; scars.

Development: Good; fair; poor. Nourishment: Good; fair; poor.

General condition: Good; fair; poor.

Muscles: Firm; flabby. Paralysis. Co-ordination.

Head: Normal; bosses prominent; pediculi.

Nares: Clear; crusted; mucous discharge; spur; septum deviated; adenoids.

Tongue: Moist; dry; slight white coat; brownish coat. Breath: Sweet; foul.

Tonsils: Normal; large; buried; cryptic; inflamed; purulent; absent.

Teeth: Good; carious (number). Approximation: Good; poor.

Ears: Right ear: Drum normal; dull; retracted; bulging; cerumen; discharge.
Left ear: Drum normal; dull; retracted; bulging; cerumen; discharge.
Hearing: Right: Left:

Eyes: Right eye: Vision . Lids: Normal; inflamed. Discharge. Keratitis.
Left eye: Vision . Lids: Normal; inflamed. Discharge. Keratitis.
Pupils: Equal; unequal; react to light; distance. Motions: Normal; abnormal.
Strabismus:

Glands: Normal; enlarged; anterior cervical; post cervical; epitrochlear; axillary; submaxillary; bronchial; inguinal; thyroid. Few and large; many and small.

Pulse: Strong; medium; weak. Volume: Good; fair; poor. Rhythm: Regular; irregular.

Heart: Area; dullness; c. m. left midsternal line. Apex 4th; 5th; 6th.
c. m. right midsternal line. Space in nipple line:
c. m. outside nipple line.
c. m. inside nipple line.

Action: Regular; irregular. Sounds: clear; impure.

Thrill: Present; none. A^2: P^2:

Murmurs: None; soft systolic	at	apex	tr. to	ant. axillary line.
loud systolic		pulmonic		mid. axillary line.
diastolic		aortic		angle of scapula.

Lungs: Resonance; throughout. Respiration; throughout.

Abdomen: Normal; large; lax; distended; tympanitic; tender. Hernia: inguinal; umbilical.

Liver: Dullness, 5th space rib to costal border nipple line.

Spleen: Felt; not felt.

Extremities: K. J. present and equal; absent. Edema: present; absent.

Kernig: present; absent. Babinsky: present; absent.

Epiphyses: Normal; enlarged. Bowlegs; knock knees; club foot.

Skin: Smooth; rough; clear. Scars. Vaccination: present; absent.

Spine: Normal. Lateral curvature: right; left. Round shoulders. Kyphosis.

Scapulæ: Flat; winged.

Chest: Normal; barrel; flat; funnel; pigeon; Harrison's groove.

Feet: Arches: Good; pronated. Station: Normal. Gait: Normal.

Blood: If any test has been made, please record here. Hg. W. B. C. R. B. C. Stain. Wassermann.

Mental test: If any mental test has been made, please record mental age as compared with actual age:
Is child retarded in school? How many years?

Weight: Stripped, lbs.; with clothing, lbs. Approximate wt. of clothing: lbs.

Height: inches.

Normal weight for age: lbs. Normal height for age: inches.

Approximate time given to this examination: minutes.

Name: Date:

Examiner:

Manual of Instructions.

1. The first requisite of an adequate physical examination is a complete personal history, which should be obtained by the nurse in the home, and should cover all the infections and illnesses from which the child has suffered, with the dates of each. It should also cover exposure to open cases of tuberculosis, and date. Elimination (bowels and urine) should be noted; also sleep, food, habits, dreams, night terrors, somnambulism and enuresis.

2. *Physical Examination.* — The child should be stripped to the waist for an adequate physical examination, and abdominal observations should also be made for hernia, etc. Weight should be without clothes, to be accurate; otherwise, remove shoes and estimate clothing (not forgetting whether damp or dry, and how many marbles, etc., may be in the pockets).

3. The nurse's personal history of the child should be in the doctor's hands when he makes the physical examination, that special attention may be given to any special condition or possible infection as noted in the history and advice given to parent or child with reference to it.

4. Thirty minutes is the time allowed for the first physical examination by the United States Bureau of Education, in Bulletin No. 23, 1916, "Open-air Schools." For this study the first examination and the last should be thorough, if dependable results are to be obtained.

NOTES.

Original examination should take about thirty minutes (for open-air school).

Parent, nurse, teacher or matron should be present at examination.

The first requisite of an adequate physical examination is a complete personal history, which should be obtained by the nurse in the home, and should cover all the infections and illnesses from which the child has suffered, with dates of each. This should be followed by as much more detailed information as can be obtained regarding the family history, with particular stress upon exposure to infection. When tuberculosis is known to exist in the family, it is important to discover whether the disease existed during the lifetime of the child, and whether the child came in contact with any one who may be assumed to have been an open case. Accurate observation should be made of height, and the degree of departure from the normal should be recorded.

Observations of departure from normal are valueless unless they lead to medical treatment which will correct these conditions. The physician alone should decide just what particular modification of the usual routine should apply to a particular child.

For examination, note the following: —

1. *General Appearance.* — Pallor, fatigue and relaxed muscular balance as indicated by the way the child stands.

2. *Teeth.* — Number of decayed teeth should be recorded.

3. *Eyes.* — In addition to defects of vision records should be made of inflammatory conditions, and careful search made for keratitis,

which will often lead to the discovery of tuberculosis. Trachoma should be promptly detected.

4. *Ears.* — Aside from defects of hearing, careful observations should be made for ear discharges, and these being discovered, very definite effort should be made for the removal of the cause and plans made for the effective carrying out of the treatment.

5. *Nose.* — Nasal obstructions should be a matter not merely of record, but should be followed up continuously until the defect is corrected in a way not detrimental to the child's health.

6. *Adenoids.* — If present, adenoids may cause the velum to stand away from the posterior pharyngeal wall, and the pressure of this growth behind the velum prevents the reflexes of this region which are normally present upon depression of the tongue.

7. *Tonsils.* — Enlarged tonsils should be classified according to the degree of enlargement and interference with respiration, and the pressure of pus in crypts. The normal distance between tonsils is 1 to 1.2 inches.

8. *Glands.* — More definite standards should be adopted for the observation of enlarged glands and their classification as to size and number, so that different observers recording enlarged glands will mean the same thing. Any palpable gland should be recorded. Submaxillary glands escape notice unless the head is thrown forward.

Numerous small palpable cervical glands are more suggestive of tuberculosis than a few glands of large size.

Large bronchial glands often produce a systolic murmur at the border of the sternum, between the first and third ribs, when the head is thrown back (Smith's sign).

9. *Heart.* — The discovery of adventitious sounds in the heart should lead to repeated examination, and careful differentiation should be made between functional and organic murmurs.

10. *Lungs.* — First examination of the lungs should be sufficiently detailed to determine marked departure from the normal condition, leaving more detailed examination for subsequent and repeated observation.

11. *Sputum.* — Sputum examinations should be made as frequently as there is acute increase of cough.

12. *Blood.* — Tallquist hemoglobin estimation should be made at least twice a year.

Following are the letter and questionnaire sent to the superintendents of schools: —

To the Superintendent of Schools.

We are enclosing herewith an inquiry in regard to open-air schools. It is intended that a complete schedule shall be filled in for each open-air school, or school having open-window rooms, in the city, perhaps by the principal in charge of the school. If, therefore, we have sent you an insufficient number of schedules, kindly advise how many additional copies you require. (Schedule B.)

We enclose also one sheet marked "Schedule A," which we are anxious to have you fill in and return to us, whether or not you have open-air schools in your city. Realizing that such a questionnaire as this is a good deal to ask of busy people, these schedules have been drafted with alternative answers, in so far as was possible to do so, both to indicate the nature of the information desired and to make inquiry of the type easiest to answer, in which the information has already been analyzed, and statements which do not apply to your particular schools may simply be lined out.

We desire, of course, to obtain as full and complete information as possible at your early convenience, but request that you return the schedule with a part of the information if you cannot answer all the questions.

Very truly yours,

SCHEDULE A.

To the Superintendent of Schools.

Kindly fill out this schedule and return to Dr. Merrill Champion, Director, Division of Hygiene, Department of Public Health, State House, Boston, Mass.

City: Date:

Name of superintendent of schools:

Registration, September, 1919: High schools:
Junior high:
Elementary:
Total:

No. pupils in open-air schools (or open-window rooms):

No. pupils to open-air room: Average: Maximum:

No. open-air rooms in city:

No. buildings with all open-window rooms:

Total no. buildings with some open-air (or open-window) rooms:

When were your open-air schools started? By whom?
School department; Anti-Tuberculosis Society; Private school; Private individuals; Board of health.

If any have been discontinued, when? For what reason?
Interfered with school program; Not proper protection for children against cold (clothing, food); Teachers could not keep warm; Insufficient funds.

For what class of children were the open-air rooms originally planned? Pretuberculous; Malnourished; Anemic; Cardiac; Generally subnormal.

Has any change been made in the class of children admitted?

How great, in your opinion, is the need for further open-air schools?

How many additional copies of Schedule B do you require (allowing one copy for each school having an open-air room)?

SCHEDULE B.

To the Superintendent of Schools or the Principal of the School having an Open-air Room.

Date: 1920.

Please fill out the following schedule for your building and return the schedule to Dr. Merrill Champion, Director, Division of Hygiene, State Department of Public Health, State House, Boston.

Name of school: Location: St.; City:

Name of principal of school:

Names of teachers, open-air rooms:

	Entire School.	Open-air School.
No. of pupils:		
No. of rooms:		
Sq. ft. floor space (exclusive of halls, assembly rooms, basement):		
School hours:		
School opens at	A.M.	A.M.
Intermission from	to P.M.	to P.M.
School in P.M. from	to P.M.	to P.M.
Temperature:		
Recorded or not recorded daily:		
Regulated or unregulated:		
Kept at (degrees):	60, 65, 68, 70, 72, 75	45, 50, 55, 60, 65, 68, 70
Has heat, but varies with outside temperature:		Yes: No:
Thermometers:		
No. in schoolroom:	1, 2, 3.	1, 2, 3.
Where placed:	Near window; near door; 1, 2, 3 feet above floor.	Near window; near door; 1, 2, 3 feet above floor.

NOTE. — It is colder near floor, where children sit.

Bathing facilities:		
Tubs:	Yes: No:	Yes: No:
Showers:	Yes: No:	Yes: No:
Dental clinics available:	Yes: No:	Yes: No:
Lunches:	Mid-morning, soup, milk or cocoa. Noon lunch provided at school.	Breakfast. Mid-morning lunch. Noon lunch. Lunch at close of school: P.M.
Lunches paid for by:	Children; school; health department; outside agency.	Children; school; health department; outside agency.

Windows in open-air rooms: On 1, 2, 3, 4 sides of room.
Kept partly (entirely) open at all times.
Closed in stormy weather; Closed on windy side of room.
Open a little at top and bottom all the time.
Open space of window covered with cheesecloth.
Screens for drafts.

Types of windows:
Casement: Slide up and down; Fold in middle.
Turn on pivot rod; Hinged at top and lift inward (outward).

Desks and seats:
Fixed? Yes: No: Movable? Yes: No:
Moved into sunlight for children with tuberculous tendencies? Yes: No:
Moved near blackboard for near-sighted children? Yes: No:
Seats adjustable to height? Yes: No:
Desks adjustable to height? Yes: No:
Desks adjustable to distance from child? Yes: No:
Is desk adjusted during the day, lowered for writing, raised for studying (so that child may sit erect while studying)? Yes: No:
Is there any attachment to hold book at level of child's eyes, at proper distance for studying, when child is sitting erect, and leaning back in seat? Yes: No:

Does this open-air school have the *three essentials of an open-air school,* — open air (or open windows); extra nourishment; rest period? Yes: No:

Pupils have 1, 2, 3, feedings per day.

Pupils have regular (or irregular) rest period: *on cots* in open air; on cots in rest room, windows open; on cots in schoolroom, folded after use; *in steamer chairs*; *in their own seats*, heads dropped on desk.

Pupils have 1, 2, 3, rest periods per day, of 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 minutes.

No. cots provided for open-air school:

No. steamer chairs:

Special equipment for open-air school:
Lunch room:
Lunch counter; Gas range; Gas plates (1, 2, 3,); Refrigerator; Tables (for children to sit at); Napkins; dishes; silver; mugs; paper cups.
Children sit in chairs at tables to study, and use same table for eating; Move desks together to make table.
Kitchen equipped with dishes and cooking utensils; Matron; Matron and helper; Pupils help in serving; Teacher prepares meals; Teacher buys food.
Bathing facilities:
Tubs; Showers: Yes: No:
Shared (not shared) with entire school.
Dental clinic: Yes: No:
Shared with entire school; With other schools.
Special rest room: Yes: No:
Roof used for rest room: Yes: No:
Assembly room; Hall; Basement.
Clothing: Eskimo suits are provided: Are used (are not used); Every day in cold weather. Consist of: coat, loose trouser, bloomer, felt boots, felt shoe and leggings, hood on coat, mittens.
Sitting-out bags; Sleeping bags; Blankets for cots; Blankets for use at seats.
Children wear outdoor wraps; Felt shoes; Lamb's wool shoes.

Additional provision for keeping children warm, consisting of:

No. stairs climbed by children in open-air room:
Classroom on 1st, 2d, 3d, 4th floor.
Lunch room in basement; on 1st, 2d, 3d, 4th floor.
Rest room in basement; on 1st, 2d, 3d, 4th, 5th floor.
Toilets in basement; on 1st, 2d, 3d, 4th floor.
What is the minimum number of flights a pupil in the open-air rooms must climb during the day?

Pupils in open-air school:

Choice of pupils: First selection made by teacher; nurse; school physician. Decision made by school physician; tuberculosis examiner.

Types of children chosen: Pretuberculous children only; Pretuberculous and others; Malnourished; Anemic; Cardiac; Choreic; Nervous; Convalescents from infantile paralysis and contagious diseases. (Mentally subnormal: Yes: No: Not if they are known to be mentally deficient. Otherwise cared for if found to be mentally deficient: Yes: No:)

Type of examination in choosing open-air school pupils: Weight; Height; Hemoglobin test; General appearance; Thorough examination as for tuberculosis; Child stripped; Stripped to waist; Clothing opened at neck; Referred by school physician to tuberculosis examiner or to family physician.

Special care given to open-air pupils. School doctor visits children: Every week; Every 2 weeks; Every month; Irregularly; At frequent, infrequent, intervals; When called by nurse.

Nursing by school nurse (under school department) (under board of health); By tuberculosis nurse, under board of health; under V. N. A.; under:

Children weighed weekly; Every 2 weeks; Monthly; Every 2, 3, 4, 5, 6 months. Weight record posted in schoolroom for children to see.

Temperature and pulse taken daily; Weekly; Monthly; Not taken.

Weight record sent home on monthly report card? Yes: No:

Discharge from open-air school and disposition:

When are pupils discharged?

When up to normal weight (for age, for height).

When hemoglobin test is normal.

When improved and other more needy pupils need the open-air school.

When they have finished the school year.

When they have finished grades in open-air room.

In order to get back into regular grades so as to finish *sixth grade* (so as to get working certificate).

For other reasons:

Further need of open-air rooms: How many pupils, in your opinion, could, with advantage to themselves, be put into open-air rooms?

What are the objections to this?

Teachers object because:

1. Open-air classes interfere with school program.
2. Teachers cannot keep warm; they do not like so many grades in a room as most open-air rooms have.

Principal objects because of difficulty with school program.

School physician does not favor open-air rooms.

Insufficient funds to provide equipment.

Insufficient funds for proper feeding.

Other reasons:

Results of Open-air Schools.

Gains in weight:

How many pupils in your open-air rooms lost weight during the year 1917–18?

How many gained?

1 oz. per month:	2 oz. per month:	3 oz. per month:
4 " " "	5 " " "	6 " " "
7 " " "	8 " " "	9 " " "
10 " " "	11 " " "	12 " " "
13 " " "	14 " " "	15 " " "
16 " " "	17 " " "	18 " " "

Was the average gain per month figured for other pupils in school? Yes: No:

How much was it?

Other results:

Improvement in color; Alertness; General appearance; Mentality; Disposition; Appetite; Resistance to colds; Nervous symptoms; Cardiac conditions; Bronchitis.

Did adenoids and tonsils disappear or show any change?

Other observations:

Cost of Open-Air Schools.

(Figures for 1917–18, or for calendar year 1918. Underline which.)

Cost to pupil: Children pay 2, 3, 4, 5, 6, 8, 10 cents per day for mid-morning lunch.
Children pay 10, 15 cents per day for noon lunch.
Children pay additional:

Cost to city: (In figuring proportion of expense belonging to open-air department of a school, use the ratio of floor space occupied by each, exclusive of halls, assembly hall, basement.

Total Costs for Entire Building.

Building cost to construct (in year)	$
Cost of maintenance of building (year)	
Overhead expenses, entire building	
Principal's salary	
Total (of items in common)	$

Dividing this on ratio of floor space, as above:

	Proportion belonging to Open-air Department.	Proportion belonging to Balance of School.
Items in common (as above)	$	$
Now add:		
Teachers' salaries		
Extra expenses (lunches, etc., especially for open-air or especially for rest of school)		
Total (cost of construction of building and maintenance for one year, subdivided as to open-air department and balance of school)	$	$
No. pupils, open-air department		
Cost per pupil, open-air department	$	
No. pupils, balance of school		
Cost per pupil, balance of school		$

Remarks:

Date: Signed:

THE COMMONHEALTH.

Bimonthly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

Open-air Schools. — The study of open-air schools presented in this issue of the Commonhealth is interesting in respect to its negative findings as well as in respect to its positive findings. It was hoped that as a result of this investigation certain facts would stand out with such clearness that it would be possible to lay down tentative standards at least with regard to costs, type of care and percentage of children requiring such care. This has not been found to be feasible. It seems evident that more study and experiment are necessary to determine, for example, what the dominant factor is in the unquestioned improvement shown under open-air treatment in conjunction with extra feeding, rest and supervision of habits of living. Any one of the last three must play, without reference to the others, a considerable part in bringing about the improvement noted. Is it possible that the open-air factor is not the essential one?

Encephalitis Lethargica. — Encephalitis lethargica was made a reportable disease by the Massachusetts Department of Public Health, effective March 1, 1921, for purposes of study and investigation rather than merely for quarantine purposes.

The following letter and pamphlet have been sent out to the physicians of the State on the subject of typhus and encephalitis lethargica, respectively: —

March 15, 1921.

Dear Doctor. — The unsettled conditions in Europe, together with the vast number of immigrants coming to this country, have increased the likelihood of typhus fever infection being introduced into this State.

The Department of Public Health takes this opportunity to call this fact to the attention of the medical profession of Massachusetts, and to urge that special care be exercised in the diagnosis and differentiation of exanthematous conditions of newly arrived immigrants or their associates.

Typhus fever is an acute, febrile, specific, infectious disease, with characteristic macular, often hemorrhagic, exanthem, and accompanied with severe nervous and mental symptoms.

The incubation period is from five to twenty days, — average, twelve days. Onset is usually sudden, with chill, fever, headache, myalgia, severe prostration, tachycardia, coated tongue, suffusion of face and eyes, mental dullness, delirium and vomiting.

The exanthem appears on the fourth or fifth day on the lower abdomen and shoulders, later upon the chest, back and upper abdomen, and last upon face and extremities. The whole rash appears within two or three days, and lasts from a few days to a week or more.

The rash consists of pale red spots, varying in size from a pinhead to a small pea, being macular. After a few days it assumes a dirty red and ceases to disappear upon pressure. Some spots become definitely hemorrhagic.

The fever rises suddenly with only slight remissions. Defervescence occurs at the end of the second week, generally by rapid lysis, becoming subnormal in two to twenty-four hours.

There is usually a slight leukocytosis, 12–15,000.

The disease should be differentiated from typhoid fever, smallpox, epidemic cerebrospinal meningitis (spotted fever) and measles.

The disease is transmitted exclusively by the bite of body or head lice, and the prevention lies in cleanliness. There is no possible danger of a typhus epidemic or typhus outbreak in a deloused, cleanly community.

The Department will be pleased to assist in the diagnosis of any questionable case.

Very truly yours,
EUGENE R. KELLEY, M.D.,
Commissioner of Public Health.

Encephalitis Lethargica.

Encephalitis lethargica is popularly spoken of as the "sleeping sickness" because an important symptom of it has often been lethargy and sometimes deep coma. The name "sleeping sickness," however, has already been preempted for another disease, viz., "African trypanosomiasis," which also and more particularly is characterized by sleep or coma.

In 1916 encephalitis lethargica appeared in Austria; early in 1918 in England; and in the winter of 1918–19 in the United States.

The Department of Public Health of the Commonwealth on April 5, 1919, requested voluntary reporting of this disease by physicians and boards of health, and at a meeting of the Public Health Council held Feb. 8, 1921, encephalitis lethargica was declared to be a disease dangerous to the public health, and as such reportable under the provisions of sections 7, 109, 111 and 112 of chapter 111 of the General Laws. This action was taken because of the present unusual prevalence of the disease which was brought to light by a recent investigation by the Department.

The principal reason for making the disease reportable was in order to facilitate the gathering of information about it, and in taking this action the council did not feel that present knowledge justifies any restrictive measures such as special quarantine, exclusion from general hospitals, etc.

To Feb. 1, 1921, the Department of Public Health has records of 75 cases: 33 prior to Jan. 1, 1921, and 42 during January, 1921. Based on these cases, and more especially on the literature, the following observations on the present status of our knowledge of the disease are offered: —

1. *Etiology.* — Not known. Some investigators claim that, like poliomyelitis, it is due to a filterable virus. These claims have not been corroborated. Research workers hope that, with the now more abundant material available, this question may soon be cleared up.

The ideas that it might be due to food poisoning (notably botulism) or was a sequela of influenza have both been discarded as disproved. Food-poisoning cases with some degree of frequency occur in groups; and, since there is now no influenza, the January cases could not have been its sequelæ. The investigation of January cases did not point to either of these factors.

2. *Pathology.* — A perivascular infiltration of mononuclear cells and an edema about the blood vessels in the encephalon. Sometimes small hemorrhages occur. The structures particularly mentioned as affected have been the optic thalamus, the third and lateral ventricles, the aqueduct of Silvius, the pons, the medulla, etc. The cord is occasionally also affected to some extent. The hospital cases investigated have given histories of spinal fluid cell counts averaging from 15 to 50 cells, generally mononuclear in character. Where there was a high count some polymorphonuclears were noted.

3. *Symptoms.* — Flexner suggests MacNalty's classification as useful: (1) Symptoms of a general nature referable to the central nervous system with no localizing signs. (2) General symptoms with third nerve paralysis. (3) General symptoms with localizing signs of facial paralysis. (4) General symptoms with localizing signs extending down to the cord. (5) General symptoms with polyneuritic involvements. (6) Mild and abortive cases.

This classification is logical, and presents the symptoms as dependent on the progressive pathology described above. Furthermore, the 28 January cases studied in certain hospitals seemed to justify this picture. Symptoms are, then, presented under two heads: —

A. General: Such symptoms as general irritability, nervousness, sleeplessness, headache, loss of appetite and nausea are common. A low-grade fever is often seen. As the case progresses lethargy, mental depression, drowsiness and somnolence very commonly appear. But the very opposite has been noted, as excitability and even delirium and mania.

B. Localizing Signs: Diplopia and ptosis are exceedingly common. Other symptoms of a localizing nature are numerous, as facial paralysis, polyneuritic symptoms, blurred vision, vertigo, tremors, twitchings, muscular pains and weakness.

4. *Prognosis.* — The fatality rate has been variously stated at from 15 to 40 per cent. Of the 28 hospital cases of the series of January cases studied by

this Department, there were 10 deaths giving a fatality rate of 35 per cent. The very fact of hospitalization in these cases would seem to indicate that they were of a severe type. It is probable that many mild cases of the disease exist, and that when these, as well as the severe types, are diagnosed the fatality rate will be much less than above indicated.

5. *Epidemiology.* — Of the 33 Massachusetts cases prior to Jan. 1, 1921, in only 5 instances did the facts stated on the histories fully justify the diagnoses. Of the 42 January cases, 28 were in hospitals, and in only one or two instances was there any doubt whatever of the diagnosis. Of the first 33 cases reported, 5 were children and 28 adults. All of the January cases were adults.

From this study, though on account of the small number of cases they cannot be conclusive, the following observations are made: —

(1) As it has occurred in Massachusetts the incidence has been a winter time incidence.

(2) Adults have been far more commonly affected than children.

(3) There was generally no recent acute illness within a reasonable period prior to the onset of these cases.

(4) No single authenticated instance has been found suggesting that the disease is directly contagious, such as grouping of cases or multiple cases in a family.

(5) There is now in the minds of the profession a well-defined picture of what is to be diagnosed as encephalitis lethargica, which was not true in 1918–19.

(6) A well-defined impression exists among neurologists and clinicians that the disease may increase in prevalence in future years.

RÉSUMÉ OF COMMUNICABLE DISEASES.

JANUARY, 1921.

General Prevalence.

There were 9,251 cases of communicable diseases reported during the month, an increase of 1,332 cases over the previous month's total.

Anterior Poliomyelitis. — There were but 10 cases during the month. This is the least number of cases that has occurred since June of last year, and probably marks the end of the epidemic of 1920.

Chicken Pox. — There were 1,454 reported cases this month and 1,123 in December.

Diphtheria has increased slightly in incidence over last month, there being 965 cases reported as against 943 in December.

However promising may be the outcome of the campaign of the Department for permanent immunization of children against this disease by means of the toxin-antitoxin treatment, it is to be remembered that the result of this work will show in a lessened future incidence, and will not yet affect current prevalence. For control of outbreaks that have occurred we must not forget our contacts (home, neighborhood and school). The most practical way in which the disease can be controlled by boards of health is by intensive work in locating the contacts of each case and culturing them to see if they are carriers or mild cases. If this method does not yield good results, the fault will be found to be from failure to properly pick the contacts, to properly culture them, or to properly isolate them (as well as the cases) during the time they have the organisms in their throats.

Epidemic Cerebrospinal Meningitis. — There were 21 cases reported, compared with 28 in January, 1920, and 14 in December, 1920.

Measles. — An increase occurred, with 2,230 cases of the disease for January, against 1,876 in December.

Lobar pneumonia prevailed in about the normal amount for this season of the year. This disease, however, is not yet fully reported. For instance, the fatality rate has uniformly been about 50 per cent, based on case and death returns. This is much too high, and shows that all cases are not reported.

Scarlet Fever. — There were 1,137 cases reported in January, 1921; 1,714 in January, 1920; and 917 in December, 1920.

Pulmonary Tuberculosis. — There were 590 cases in January and 582 in December.

Typhoid Fever. — Only 38 cases were reported, which small number is not unusual in midwinter.

Whooping Cough. — Not so many cases were reported as of measles. The number was 669. The disease is much more fatal than measles, and the amount relatively large.

Rare Diseases.

Anterior poliomyelitis was reported from Athol, 1; Boston, 3; Brookline, 1; Grafton, 1; Palmer, 1; Salem, 1; Springfield, 1; Worcester, 1; total, 10.

Dog bite requiring anti-rabic treatment was reported from North Attleborough, 1; Springfield, 1; total, 2.

Dysentery was reported from Boston, 1.

Epidemic cerebrospinal meningitis was reported from Boston, 6; Chicopee, 1; Clarksburg, 1; Concord, 1; Lawrence, 2; Malden, 1; New Bedford, 4; Peabody, 2; Salem, 2; Westfield, 1; total, 21.

Malaria was reported from Boston, 1.

Pellagra was reported from Danvers, 1.

Septic sore throat was reported from Boston, 6; Brockton, 1; Cambridge, 2; Chicopee, 1; Clinton, 1; Haverhill, 1; Lawrence, 3; Leominster, 1; Lynn, 2; Lowell, 1; Newton, 2; Wakefield, 2; total, 23.

Smallpox was reported from Boston, 1; Methuen, 7; Tisbury, 1; total, 9.

Trachoma was reported from Boston, 4; West Springfield, 1; Whitman, 1; total, 6.

Distribution.

All Communicable Diseases.

	January, 1921.	January, 1920.
Total cases (all causes),	9,251	17,679
Case rate per 100,000 population,	237.0	456.9

Certain Prevalent Diseases.

	January, 1921.	January, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
			Fall River,	(19)	24
Diphtheria: —			New Bedford,	(15)	36
Total cases,	965	938	Boston,	(230)	332
Case rate per 100,000 population,	24.7	24.2	Brockton,	(10)	25
			Haverhill,	(13)	40
			Barnstable,	(3)	17
			Duxbury,	(0)	27
			Fall River,	(17)	99
			Harwich,	(1)	12
			Mansfield,	(3)	83
			Taunton,	(8)	34
			Easton,	(0)	25
			Framingham,	(3)	76
Measles: —			Marlborough,	(3)	122
Total cases,	2,230	3,986	Natick,	(1)	68
Case rate per 100,000 population,	57.1	103.0	Newton,	(23)	50
			Norwood,	(0)	22
			Wellesley,	(8)	34
			Lowell,	(19)	322
			Tewksbury,	(0)	30
			Westford,	(0)	27
			Clinton,	(1)	49
			Worcester,	(12)	109
			Lenox,	(0)	47
			Pittsfield,	(1)	148
			Attleboro,	(6)	13
			Boston,	(145)	200
Scarlet fever: —			Plymouth,	(0)	31
Total cases,	1,137	1,714	Taunton,	(3)	14
Case rate per 100,000 population,	29.1	44.3	Braintree,	(0)	18
			Malden,	(13)	29
			Methuen,	(2)	41
			Somerville,	(17)	34
			Springfield,	(28)	102
Typhoid fever: —					
Total cases,	38	62			
Case rate per 100,000 population,	1.0	1.6			
Whooping cough: —			Provincetown,	(0)	45
Total cases,	669	1,149	Marion,	(0)	30
Case rate per 100,000 population,	17.1	29.7	Brockton,	(1)	42
			Haverhill,	(7)	41
Tuberculosis, pulmonary: —					
Total cases,	590	483			
Case rate per 100,000 population,	15.1	12.5			
Tuberculosis, other forms: —					
Total cases,	78	84			
Case rate per 100,000 population,	2.0	2.2			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

FEBRUARY, 1921.

General Prevalence.

Communicable disease incidence for February has remained practically the same as during January, there being 9,079 cases reported this month as compared with 9,199 for last month.

Chicken pox, which had gradually been increasing for several months, began to decrease slightly. In January there were 1,454 cases, and in February 1,349.

Diphtheria fell off 170 cases, there being 795 cases for the month, against 965 for January. This disease had been gradually increasing since September, when the lowest number of cases was reported.

Epidemic Cerebrospinal Meningitis. — There were 13 cases reported. An interesting feature at this time was the fact that 2 cases of this disease, occurring in recently arrived immigrants, at first resembled, in some respects, typhus fever.

Measles, with 2,325 cases, showed a slight increase.

Pneumonia, lobar, decreased to 467 reported cases.

The *scarlet fever* situation remained unchanged, 1,192 cases being reported in February, and 1,135 in January. The disease is pretty uniformly distributed over the State.

Pulmonary Tuberculosis. — There were 572 cases against 546 last month.

Whooping cough continues to increase, with 713 cases for February, against 669 for last month.

Rare Diseases.

Anterior poliomyelitis was reported from Boston, 2; Dennis, 1; Greenfield, 2; Leominster, 1; Lynn, 1; Newton, 1; Quincy, 1; Weymouth, 1; total, 10.

Dysentery was reported from Plainfield, 5.

Dog bite requiring anti-rabic treatment was reported from Fall River, 3; Holyoke, 1; Lowell, 2; South Hadley, 1; total, 7.

Epidemic cerebrospinal meningitis was reported from Bourne, 1; Cambridge, 1; Chicopee, 1; Fall River, 2; Lawrence, 1; Lowell, 1; Malden, 1; Phillipston, 1; Plymouth, 1; Somerville, 1; Spencer, 1; Walpole, 1; total, 13.

Pellagra was reported from Danvers, 1.

Septic sore throat was reported from Boston, 14; Cambridge, 1; Lawrence, 1; Lowell, 1; Lynn, 1; Newburyport, 2; total, 20.

Smallpox was reported from Methuen, 3.

Trachoma was reported from Boston, 7; Chelsea, 1; Fitchburg, 1; Medford, 1; total, 10.

Distribution.

All Communicable Diseases.

	February, 1921.	February, 1920.
Total cases (all causes),	9,080	38,436
Case rate per 100,000 population,	232.7	993.4

Certain Prevalent Diseases.

	February, 1921.	February, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria: —			Boston,	(216)	253
Total cases,	795	640	Brockton,	(8)	28
Case rate per 100,000 population,	20.4	16.5	Framingham,	(0)	19
			Wellesley,	(0)	8
			Haverhill,	(18)	38
			Andover,	(0)	10
			Somerville,	(14)	28
			Watertown,	(1)	10
			Millbury,	(0)	6
			Easthampton,	(1)	18
Measles: —			Barnstable,	(2)	40
Total cases,	2,325	2,952	Duxbury,	(0)	59
Case rate per 100,000 population,	59.6	76.3	Fall River,	(22)	102
			Harwich,	(0)	21
			Mansfield,	(2)	45
			Cambridge,	(35)	141
			Marlborough,	(1)	106
			Wellesley,	(10)	38
			Lowell,	(10)	193
			Fitchburg,	(11)	34
			Leominster,	(4)	96
			Lenox,	(0)	53
			Pittsfield,	(1)	44
Scarlet fever: —			Attleboro,	(3)	14
Total cases,	1,192	1,079	Carver,	(0)	7
Case rate per 100,000 population,	30.5	27.9	New Bedford,	(10)	47
			Plymouth,	(0)	26
			Taunton,	(5)	24
			Boston,	(135)	286
			Lawrence,	(7)	28
Typhoid fever: —					
Total cases,	44	22	Fall River,	(3)	11
Case rate per 100,000 population,	1.1	.6			
Whooping cough: —			Fall River,	(13)	41
Total cases,	713	888	Provincetown,	(0)	54
Case rate per 100,000 population,	18.3	22.9	Brookline,	(13)	107
Tuberculosis, pulmonary: —					
Total cases,	572	451			
Case rate per 100,000 population,	14.6	11.6			
Tuberculosis, other forms: —					
Total cases,	93	39			
Case rate per 100,000 population,	2.4	1.0			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

REPORT OF THE SUBDIVISION OF VENEREAL DISEASES, FEBRUARY, 1921.

Number of ampoules of arsphenamine distributed,	3,183
Number of cases of gonorrhea and syphilis reported by number,	677
Number of smears for gonorrhea examined,	189
Number of examination fixation tests made of G. C.,	144
Number of Wassermann fixation tests made,	3,224

STATISTICAL REPORT OF CASES REPORTED BY NAME.

Cases active February 1: —

Gonorrhea,	81
Syphilis,	26
Unknown,	2
Total,	109

Cases reported by name during month,	83

A. Reported to local board of health: —

	Gonorrhea.	Syphilis.
New,	65	5
Reported second time,	13	–
	78	5

Total, 83.

B. Not reported to local board of health, as believed to be non-infectious (not included in statistics of active cases): —

Reported second time (gonorrhea),	1

Cases closed during month: —

Gonorrhea,	75
Syphilis,	17
Total,	92

Cases active March 1: —

Gonorrhea,	84
Syphilis,	14
Unknown,	2
Total,	100

Analysis of 92 Closed Cases reported by Name, classified by Disposition made.

Replaced under treatment: —		
G. C.	Boston 20, Cambridge 3, Fall River 1, Lowell 1, Quincy 1, Somerville 1, Winthrop 1,	28
S. P.	Boston 3, Springfield 1,	4
Failed to return to treatment: —		
Unable to locate; false address: —		
G. C.	Boston 15, Everett 1, Maynard 1,	17
S. P.	Boston 5, Lowell 1, Lynn 1,	7
Unable to locate; removal from city: —		
G. C.	Boston 6, Chelsea 1, Ipswich 1, Somerville 1,	9
Transferred to active cases: —		
G. C.	Boston 1,	1
No adequate report received: —		
G. C.	Boston 11, Norwood 1, Revere 2, Somerville 2, Topsfield 1, Worcester 3,	20
S. P.	Boston 1, Everett 1, Palmer 1, Somerville 1, Worcester 2,	6
	Total,	92

Old case reported by Lawrence Board of Health during February as replaced under treatment: —	
Gonorrhea,	1

Analysis of 92 Closed Cases reported by Name, classified by Referring Agency.

Transferred to another board of health: —		
Gonorrhea,		1
Boston City Hospital: —		
Unable to locate,	4	
Returned to treatment,	1	
No adequate report received,	3	
		8
Boston Dispensary: —		
Unable to locate,	16	
Returned to treatment,	22	
No adequate report received,	9	
		47
Lowell clinic: —		
Unable to locate,	1	
Returned to treatment,	1	
		2
Lynn Hospital: —		
Unable to locate,		1

Massachusetts General Hospital: —		
Unable to locate,	6	
Returned to treatment,	3	
No adequate report received,	3	
	—	12
Massachusetts Homœopathic Hospital: —		
Unable to locate,	1	
No adequate report received,	1	
	—	2
Peter Bent Brigham Hospital: —		
Unable to locate,	1	
Returned to treatment,	1	
	—	2
Salem Hospital: —		
No adequate report received,		1
Worcester City Hospital: —		
No adequate report received,		5
Private physicians: —		
Unable to locate,	3	
Returned to treatment,	4	
No adequate report received,	4	
	—	11
Total,		92

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of January and February, 1921, samples were collected in 103 cities and towns.

There were 973 samples of milk examined, of which 165 were below standard, 30 samples had the cream removed, 1 sample was skimmed milk below the legal standard, and 25 samples contained added water.

There were 599 samples of food examined, of which 146 were adulterated. These consisted of 10 samples of butter which were low in fat; 1 sample of cider which contained benzoate; 1 sample of cocoa which contained 50 per cent fat and was falsely advertised; 1 sample of cream which was below the legal standard; 3 samples of confectionery which were decomposed; 49 samples of eggs, 44 of which were cold-storage eggs not marked, 4 samples of stale eggs sold as fresh eggs, and 1 sample which was decomposed; 2 samples of flavoring extract, 1 of which was not properly labeled, and the other contained coumarin; 56 samples of sausage, 39 samples of which contained starch in excess of 2 per cent (3 samples among these also contained coloring matter), and 17 samples contained coloring matter; 1 sample of nuts which was decomposed; 5 samples of olive oil, 4 of which contained cottonseed oil, and 1 sample contained foreign oil; and 10 samples of vinegar which were low in acid.

There were 76 samples of drugs examined, of which 10 were adulterated. These consisted of 1 sample of camphorated oil and 1 sample of spirits of camphor which were low in the active ingredient; 4 samples of diluted mercurial ointment which were low in mercury; 3 samples of magnesium citrate solution which contained sulphate; and 1 sample of drug which did not conform to the prescription.

The Department of Public Welfare submitted 2 samples of soap powder and 1 sample of flour for analysis.

There were 83 hearings, and 26 warnings were issued pertaining to violations of the food and drug laws.

The police departments submitted 420 samples of liquor for examination, 345 of which were above 2.75 per cent in alcohol. The police departments also submitted 40 samples of poisons for examination, 28 of which were morphine, 10 were cocaine, and 2 samples were examined for poison with negative results.

There were 52 convictions for violations of the law, $745 in fines being imposed.

Joseph Gear of South Dartmouth; John Albriegena, James Couchiaftis, Andrew Papas, Edwin G. Robbins and Nicholas Stathis, all of Springfield; Charles Adamson and Frank A. Sutton of West Rutland; and Samuel Terzian and J. Ernest Vaughan of Whitman were all convicted for violations of the milk laws. Charles Adamson and Frank A. Sutton of West Rutland both appealed their cases.

Harry M. Briggs of Methuen; Harry H. Branard and the National Butter Company of Springfield; Mills Tea and Butter Corporation, Park Sausage and Provision Company and the Boston Sausage and Provision Company on 3 cases, all of Boston; Wilfred A. Wilkinson and Henry J. Furneaux on 2 cases, both of Lawrence; Nathan B. Flood of North Adams; Edgar M. Peck of Whitman; and Thomas D. Hyland of Taunton were all convicted for violation of the food laws.

Charles W. Lowe of Charlestown was convicted for a violation of the drug laws.

Albert Beauchemin, Henry Chain and Edward Ziter of North Adams; Mortimer Brown, Edward T. Haley and Lewis B. Hooper of Marblehead; Morris Birstine, William Callivan, Andrew Carbone, Vitto Pagliaruli, Antoni F. Renzi, Michael Ricci, Manuel Santospirito and Carlo Vicivi, all of Beverly; Jacob Hahn, Isaac Wisberg and Ovide Levesque of Fall River; William E. Kronich, William Solin and A. H. Phillips, Inc., of Springfield; Charles Cetlin of Newburyport; and Barnett Koplovitz of Boston were all convicted for violation of the cold-storage laws.

Frank A. Willard of Leominster; Flint H. Boutwell of Fitchburg; Edgar Allyn on 2 cases, of Westfield; and Jacob Geissler of Sharon were all convicted for violation of the slaughtering laws. Frank A. Willard of Leominster appealed his case.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Watered milk was obtained as follows: 8 samples, produced by John Aho of Ashburnham; 3 samples, produced by Joseph Gear of South Dartmouth; and 2 samples, produced by Joseph Jaunino of Revere.

Butter which was low in fat was obtained as follows: 1 sample each, Cudahy Packing Company, Depot Cash Market, Armour Company, F. S. Bean Company, and Turner Centre System, all of Lowell; Topsham Creamery of Topsham, Vt.; and the Skowhegan Creamery of Maine.

One sample of cream which was below the legal standard was produced by John Albriegena of Springfield.

One sample of shrimp which was decomposed was obtained from Thomas D. Hyland of Taunton.

Sausage which contained starch in excess of 2 per cent, and also contained coloring matter, was obtained as follows: 1 sample, produced by the Boston Sausage and Provision Company of Boston; and 2 samples, produced by Henry J. Furneaux of Lawrence.

Sausage which contained coloring matter was obtained as follows: 6 samples, produced by the Boston Sausage and Provision Company of Boston; 4 samples, produced by L. B. Darling Company of Worcester; 3 samples, produced by George Boepple Company of Millbury; 2 samples, produced by A. C. Hunt of Springfield; and 1 sample each produced by John Moskal of Holyoke and H. L. Handy & Co. of Springfield.

Sausage which contained starch in excess of 2 per cent was obtained as follows: 3 samples each, produced by Boston Sausage and Provision Company of Boston; Charles C. Crymble of Lynn; Henry J. Furneaux of Lawrence; Harry M. Briggs of Methuen; and the Boston Sausage and Provision Company of Worcester; 1 sample each, produced by Park Sausage and Provision Company and Frederick W. Baldau & Co., both of Boston; Wilfred A. Wilkinson, Cudahy Packing Company and Parker & Ford, all of Lawrence; Bridge Street Pork Store, William A. Barry and C. H. Willis, all of Lowell; B. J. Bertel Company of Worcester; Brahan of Pawtucket, R. I.; and Oscar Beauvau of Taunton.

One sample of cider which contained benzoate was obtained from J. A. Blake of Fall River.

One sample of flavoring extract which contained coumarin and was not properly labeled was obtained from Sturtevant-Merrill Company of Springfield.

Olive oil which contained cottonseed oil was obtained as follows: 1 sample each from Garca & Costa, Antonio Rodeigue and J. Crespe & Co., all of New Bedford; and Armenis Brothers of Boston.

Vinegar which was low in acid was obtained as follows: 2 samples from the Red Cross Products Company of Fall River; 1 sample each from Emil Michaud and C. Monast, both of Fall River; T. Phillips Son, Inc., of Boston; Frank Whitcher of Ayer; Simpson Springs Company of South Easton; and Frank Gonsalves of New Bedford.

There were 9 confiscations, consisting of 310 pounds of dried-out beef, 911 pounds of decomposed beef trimmings, 50 pounds of dried-out veal, 81 pounds of decomposed spare ribs, 434 pounds of decomposed sausage, 223 pounds of decomposed canned meats, 60 pounds of decomposed canned eggs, and 180 pounds of decomposed frozen eggs.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of December, 1920: 11,643 dozens of case eggs, 236,144 pounds of broken-out eggs, 691,502 pounds of butter, 3,890,907 pounds of poultry, 11,126,708 pounds of fresh meat and fresh meat products, and 1,427,588 pounds of fresh food fish.

There were on hand Jan. 1, 1921, 50,098 dozens of case eggs, 503,184 pounds of broken-out eggs, 10,439,854 pounds of butter, 5,604,172 pounds of poultry, 29,086,084 pounds of fresh meat and fresh meat products, and 12,369,477 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of January, 1921: 6,215 dozens of case eggs, 180,738 pounds of broken-out eggs, 779,893½ pounds of butter, 1,398,305 pounds of poultry, 11,228,811 pounds of fresh meat and fresh meat products, and 1,234,279 pounds of fresh food fish.

There were on hand Feb. 1, 1921, 2,782 dozens of case eggs, 385,183 pounds of broken-out eggs, 7,135,880 pounds of butter, 6,187,008 pounds of poultry, 34,199,273½ pounds of fresh meat and fresh meat products, and 9,369,960 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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The Northeastern District,	Lyman A. Jones, M.D., Swampscott.
The North Midland District,	Charles E. Simpson, M.D., Lowell.
The Worcester County District,	Francis A. Finnegan, M.D., Worcester.
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THE COMMONHEALTH

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MIDWIFE INVESTIGATION

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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MIDWIFERY IN MASSACHUSETTS.

BY HAZEL WEDGWOOD, FORMERLY HEALTH INSTRUCTOR, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.[1]

THE Federal Children's Bureau is responsible for some startling facts regarding maternal and infant mortality for the birth registration area of the United States. We are told that approximately 23,000 mothers die every year from causes due to childbirth,[2] and many more thousands become permanent invalids; also that many of these deaths and much of the invalidism might have been prevented. The Children's Bureau further states that 20 per cent of the infant deaths within the registration area occur before the baby is forty-eight hours old.

For some time the Massachusetts Department of Public Health has been deeply concerned with the high maternal mortality within the Commonwealth, and with the fact that this mortality has increased from 42 per 10,000 live births in 1900 to 60 in 1919. The vital statistics report for 1918 relative to the 2,944 babies who died less than one week after birth shows that nine-tenths died of prematurity, congenital debility, malformations or injuries received at birth.

Because the above conditions are largely preventable, these figures clearly show the need for better prenatal and obstetrical care for mothers, and the need is further emphasized by the fact that in Massachusetts, in 1918, 27.2 per cent of the total number of infant deaths occurred in the first week of life, and 39.7 per cent occurred during the first month of life. It must be remembered that stillbirths are not included in quoting infant mortality rates. If they were, the percentage above quoted would be much higher, as there were 3,779 stillbirths in Massachusetts in 1918.

It is impossible, with the present available data on the subject, to ascertain the relationship of the practice of obstetrics to the morbidity of mothers and infants, as, with the exception of ophthalmia neonatorum, diseases resulting from the practice of obstetrics or occurring as complications of maternity are not reportable. Puerperal septicemia may be mentioned as a disease which causes the deaths of many mothers and is due to infection occurring at childbirth, but it is not included in the list of reportable diseases. It is obvious, therefore, that no scientific study can be made of the amount or causes of sickness occurring in connection with maternity, unless it were possible to follow closely every one of the 99,000 recorded births and the other unrecorded pregnancies occurring in Massachusetts in a year.

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[1] The work of collecting data for this report was done by the writer and Miss Harriet L. Wedgwood, formerly health instructor in the Massachusetts Department of Public Health.

[2] Statement of Dr. Rude of Children's Bureau, at hearing on the Sheppard-Towner bill, and quoted in a pamphlet by Mrs. Irene Osgood Andrews, "The Protection of Maternity an Urgent Need."

The Massachusetts Department of Public Health, appreciating the fact that definite information concerning maternity is necessary before intelligent plans for the reduction of the morbidity and mortality can be formulated, has undertaken to gather data throughout the Commonwealth relative to existing conditions surrounding maternity.

Because of the intimate relation of the practice of midwifery to the mortality and morbidity of mothers and babies, it was felt that a study should be made to ascertain the extent and existing standards of the midwifery practice in Massachusetts, which study was started in the fall of 1919 by the Division of Hygiene of the Massachusetts Department of Public Health.

Method of Investigation. — The representative method of statistical inquiry was used in this study, and the following sections of the State were selected and carefully studied: Barre, Boston, Brockton, Fall River, Fitchburg, Pittsfield, Provincetown, Springfield and Westfield.

The birth records of the selected cities and towns were studied to ascertain the number and maternal nativity of the births, and who reported the births. The studies of the births cover the last six months of 1918, as these records were the latest available for comparative study at the time the investigation was undertaken.

Legal Status of the Midwife. — The midwifery situation in Massachusetts is unique. On the one hand, the medical practice laws (Revised Laws, chapter 76, section 8) state that "whoever not being lawfully authorized to practice medicine within this commonwealth, and registered as aforesaid, holds himself out as a practitioner of medicine, or practices or attempts to practice medicine in any of its branches, . . . shall be punished," etc., and Justice Robert O. Harris of the Superior Court has ruled that midwifery is an important department of medicine. (Commonwealth *v.* Maddalena Della Russo, 1904.) On the other hand, the laws covering the registration of births (Revised Laws, chapter 29, sections 3 and 10) specifically require midwives to report births and stillbirths. So far as could be ascertained, Massachusetts is the only State prosecuting midwives under medical practice laws.

This obvious contradiction in the laws has been extremely detrimental to both the midwife and her patient. It has resulted not in eliminating the midwife, but in her practicing more or less surreptitiously, with no help from physicians where it could possibly be avoided, even when such care was imperative for the welfare of the mother and her baby. This contradiction has also resulted in many unregistered births. We know that the midwife does practice, especially among the foreign-born women, but she is afraid to report the births which she attends. In Boston there has been an increase in the number of births reported by parents, and, inasmuch as the great majority of these parents are foreign born, we may assume that many of these births have been attended by midwives. Then, again, in some parts of the State certain physicians frankly stated that they reported births delivered by midwives. One midwife stated that she delivered from 75 to 100 mothers every year, and that these births were reported by a physician. However, considering the fact that this physician was supposed to report the births of this and another midwife, in addition to his own cases, and the total number of births reported by him for the year was 74, it may be assumed that very few births delivered by the midwives were reported. The above midwife stated that she was perfectly capable and willing to report her own births, but thought it was against the law in Massachusetts. The question of curtailing her practice because of the law had apparently never occurred to her, and presumably would have made no difference if it had, provided she did not get "caught" by the authorities. It is interesting to note that this midwife did not know that a fee of 25 cents was collected for each birth return.

Data from Birth Records. — The figures in Table No. 1, obtained from an inspection of 17,499 birth certificates,[1] show that the largest number of births occur among foreign-born women. The figures under the headings "reported by physicians," "reported by midwives," and "reported by others," are misleading and incomplete, because, under the existing laws governing the practice of midwifery, many physicians and others report births at which a midwife was in attendance. The question, "Did above named personally attend the birth?" was unanswered on hundreds of the birth certificates inspected, and on 280 certificates physicians stated that they did not personally attend the birth. However, misleading and incomplete as this table is, it does show that 10 per cent of the births among foreign-born mothers were reported by midwives, against 1 per cent of the births among native-born mothers. It also shows that 6 per cent of the total number of births studied were reported by midwives.

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[1] Total number of births for the last six months of 1918, in the cities and towns studied.

The number of physicians reporting births was 1,132, and the number of midwives reporting births was 82, but 35 midwives were found who did not report births during the six months studied. Many of the midwives stated that they did nursing work only, but as several of them advertised as midwives, these statements may be questioned.

TABLE No. 1. — *Number and Percentage of Native and Foreign Born Mothers, together with the Person reporting the Births.*

	TOTAL BIRTHS.		REPORTED BY PHYSICIANS.		REPORTED BY MIDWIVES.		REPORTED BY OTHERS.		Total Per Cent.
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
Native-born mothers,	8,105	46.4	7,937	98.0	85	1	83	1.0	100
Foreign-born mothers,	9,217	52.6	7,809	85.0	944	10	464	5.0	100
Not known,	177	1.0	93	52.5	23	13	61	34.5	100
Total births studied,	17,499	100.0	15,839	90.5	1,052	6	608	3.5	100

Table No. 2 shows the maternal nativity, and indicates, even with incomplete registration, the nationalities of mothers who employ midwives. It would seem that midwives operate extensively among the Portuguese mothers, as 65.3 per cent of the total number of births among Portuguese women were reported by midwives. Midwives are also popular among Polish, Finnish, Turkish, Lithuanian and Italian mothers, the percentage reported by midwives for the total number of births of these nationalities being: Turkish, 58 per cent; Finnish, 55 per cent; Polish, 36 per cent; Lithuanian, 14.4 per cent; and Italian, 6.4 per cent.

In connection with the Polish, Lithuanian and Italian mothers, it should be noted that 36 births among Polish mothers, 19 among Lithuanian, and 108 among Italian mothers were reported by other than physicians or midwives, and it may be assumed that a midwife was in attendance at most of these births, since midwives who did not report births were found to be practicing among all of these nationalities. If these births were added to the number reported by midwives, the percentage of Polish mothers employing midwives would be raised from 36 to 44.8; in the case of Lithuanian mothers the percentage would be raised from 14.4 to 33.9; and in the case of Italian mothers, from 6.4 to 11.4.

It will be noted also that 4.5 per cent of the total number of births reported by physicians are stillbirths, and 1.2 per cent of the total number of births reported by midwives are stillbirths. This may be explained by the fact that physicians are usually called in for abnormal cases, and therefore personally report such cases.

TABLE No. 2. — *Total Number of reported Births, including Live Births and Stillbirths, in the Nine Districts studied, with Maternal Nativity and Person reporting, for Six Months, July 1 to Dec. 31, 1918, inclusive.*

MATERNAL NATIVITY.	Total Number of Births studied.	NUMBER REPORTED BY PHYSICIANS.		NUMBER REPORTED BY MIDWIVES.		NUMBER REPORTED BY OTHERS.	
		Live Births.	Stillbirths.	Live Births.	Stillbirths.	Live Births.	Stillbirths.
United States,	8,105	7,652	285	85	–	81	2
Austria,	283	211	16	46	2	8	–
British Empire (exclusive of Canada, Scotland and Ireland),	372	343	14	12	–	3	–
Canada,	1,319	1,238	60	11	–	10	–
Scotland,	122	113	6	1	–	2	–
Ireland,	1,404	1,325	63	3	–	13	–
France,	20	19	–	–	–	1	–
Germany,	53	49	3	1	–	–	–
Greece,	126	117	3	4	–	2	–
Italy,	2,065	1,724	99	134	–	108	–
Norway,	51	50	–	1	–	–	–
Poland,	408	209	16	147	–	34	2
Portugal (including Azores),	692	207	32	452	–	1	–
Russia (exclusive of Finland and Lithuania),	1,309	1,234	55	3	–	17	–
Finland,	92	38	3	51	–	–	–
Lithuania,	97	64	1	13	–	19	–
Sweden,	177	165	10	1	–	1	–
Turkey (exclusive of Galicia, Armenia and Syria),	55	23	–	32	–	–	–
Galicia,	75	47	–	–	–	28	–
Armenia,	32	31	–	1	–	–	–
Syria,	121	96	4	18	–	3	–
Albania,	16	13	2	–	–	1	–
Belgium,	5	5	–	–	–	–	–
Denmark,	13	13	–	–	–	–	–
Holland,	12	11	1	–	–	–	–
Other foreign countries,[1]	298	78	–	11	–	209	–
Unknown,	177	83	10	12	11	61	–
Totals,	17,499	15,156	683	1,039	13	604	4

[1] Includes Africa, Bohemia, Bulgaria, China, Cuba, Hungary, Japan, Malta, Persia, Roumania, South America and Switzerland.

In all parts of the State except Boston agents are employed annually by the municipalities to make a house-to-house canvass for the purpose of locating unreported births. Table No. 3 shows that 341, or 1.9 per cent of the total number of births studied, were reported by these canvassers, and of this number, 104 births, or 30.5 per cent, were reported by the canvassers to have been attended by physicians;

111, or 32.5 per cent, by midwives; and on 126, or 37 per cent, of the 341 certificates the attendant was not stated. Many of the mothers employing midwives know of the laws which virtually prohibit midwives from practicing, and these mothers will give no information regarding their confinement.

TABLE NO. 3. — *Detail of Births reported by Others.*

Total births reported by canvassers,		341
Live births,	337	
Stillbirths,	4	
Attendant at birth, as shown by canvassers' returns: —		
Physician,	104	
Midwife.	111	
Unknown,	126	
Births reported by others than canvassers,		267
Total births reported by others,		608[1]

Midwives. — Information relative to midwives was secured through the inspection of birth certificates and from physicians, local boards of health, city and town clerks, visiting nursing associations, clergymen, social workers and old city directories.

In this way 117 midwives were found living in the districts studied, but this number does not include 17 "neighbors" who reported one or more births, nor does it include 4 midwives living outside the districts but reported to be practicing in them. If these were added, the total number of midwives would be 138 instead of 117. It has been most difficult to distinguish between the midwife and the neighbors, relatives and practical nurses who care for obstetrical cases, many times delivering the woman and registering the birth.

In one community where no midwives were found, an interesting way of handling the obstetrical work was discovered. One physician has most of the obstetrical practice, and is assisted by two trained nurses and one practical nurse, all of whom can and do deliver women in emergencies, and stay with patients while the physician is busy elsewhere.

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[1] Hospital cases, 12; birth certificates made from death certificates, 9.

TABLE NO. 4. — *Nativity and Number of the Trained and Untrained Midwives in the District studied.*

NATIVITY.	Total.	TRAINED.		Un-trained.	Un-known.	AGES (YEARS).				
		United States.	Abroad.			20 to 30.	30 to 40.	40 to 50.	Over 50.	Un-known.
United States, .	6	–	–	2[1]	4	–	–	1	2	3
Austria, . .	1	–	1	–	–	–	–	1	–	–
England, . .	5	–	1	1	3	–	–	1	1	3
Greece, . .	1	–	–	1	–	–	–	1	–	–
Italy, . . .	20	–	16	4	–	–	2	12	6	–
Poland, . .	20	4	5	11	–	–	6	3	1	10
Portugal, . .	28	–	2	18	8	–	1	7	2	18
Russia, . .	1	–	–	1	–	–	–	–	–	1
Finland, . .	3	1	1	1	–	1	2	–	–	–
Lithuania, .	11	–	–	10	1	–	5	–	–	6
Syria, . .	3	–	–	1	2	1	–	–	–	2
Belgium, . .	1	–	1[2]	–	–	–	1	–	–	–
Unknown, . .	17	–	–	–	17	–	–	–	–	17
Totals, .	117	5	27	50	35	2	17	26	12	60

[1] Signed "R.N." on the two birth certificates, and answered "Yes" to the question, "Did above named personally attend the birth?"

[2] Belgian, trained in Italy.

For the purpose of securing first-hand knowledge of standards of living and general cleanliness, as well as to obtain information regarding training and practice, 80 midwives were visited in their homes. In most cases information was very reluctantly given, as it was feared that it would be used as a basis for prosecution, and only when the midwives were assured that this was not the case would they answer questions. These answers were more or less always very reservedly given, so that the information obtained is meager, and, in some cases, is probably inaccurate.

The general cleanliness of these women may be classed under three headings, — good, fair and dirty. In making these classifications, not only personal cleanliness was noted but also the general cleanliness of the home and other members of the family. Thirty of these women were classed as "good," which means that they were personally clean and their homes, families and surroundings evidenced high standards of living. Twenty-nine women were classed as "fair," which means that they and their surroundings were clean but untidy, and gave the impression of general slackness. Twenty-one women were classed as "dirty." This first-hand information relative to midwives and their homes does not confirm the statements made by many persons that all midwives are dirty and have low standards of living.

Owing to the difficulty in securing reliable and full information regarding all the midwives and their practice, 25 of them were selected for a detailed study, not because of any particular qualifications, but because it was believed that the information given was reasonably accurate and complete. The information was obtained from a personal visit to each midwife, and this study is shown in Table No. 5.

TABLE NO. 5. — *Detailed Study of Twenty-five*

NATIONALITY.	Total Number.	AGES (YEARS).				LENGTH OF RESIDENCE IN UNITED STATES (YEARS).							MARITAL STATE.		READ AND WRITE.		
		20 to 30.	30 to 40.	40 to 50.	Over 50.	Life.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	Over 40.	Unknown.	Married.	Widowed.	English.	Own language.	Both.
United States, .	2	–	–	1	1	2	–	–	–	–	–	–	2	–	2	–	–
Austria, . .	1	–	–	1	–	–	–	–	1	–	–	–	1	–	1	1	1
England, . .	1	–	–	1	–	–	–	–	1	–	–	–	–	1	1	–	–
Italy, . .	9	–	2	3	4	–	–	2	1	1	1	4	9	–	6	9	6
Poland, . .	6	–	3	3	–	–	–	–	–	–	–	6	6	–	5	6	5
Portugal, . .	2	–	1	–	1	–	2	–	–	–	–	–	1	1	1	1	1
Finland, . .	3	1	2	–	–	–	–	2	–	–	–	1	3	–	2	3	2
Syria, . .	1	1	–	–	–	–	–	1	–	–	–	–	1	–	–	–	–
Totals, .	25	2	8	9	6	2	2	5	3	1	1	11	23	2	18	20	15

All of the 25 midwives included in this table had lived in the United States five years or more. The actual number of years for the 11 included in the "unknown" column could not be ascertained, but in every case it was known that the length of residence was over five years.

No single women were found among any of the midwives visited. Considering the fact that there are only 2 widows out of the 25, it would seem that midwifery is practiced to supplement the family income rather than as a means of making a living from the practice alone. Only 2 of the 25 could be classed as illiterates, as the rest could at least read and write their own language, and 15 could read and write both their own language and English. Sometimes the English was rather queerly phrased, but they were able to make themselves understood. Of the 2 midwives between twenty and twenty-nine years of age, 1 is working with her mother-in-law and 1 with her mother. All 4 are untrained.

Fifteen out of the 25 stated that they had received special training in midwifery, and 5 said they had been trained in the United States. All but 2, 1 Italian and 1 Austrian, showed diplomas to verify the statements regarding their training.

Of the 4 Polish midwives trained in the United States, 2 were trained at the Bellevue School of Midwifery, New York (one, six months, and one, eight months); 1 was trained at the Illinois Train-

Practicing Midwives selected from the Districts studied.

TRAINING.			LENGTH OF PRACTICE (YEARS).						NUMBER OF REPORTED BIRTHS, SIX MONTHS.		GENERAL CLEANLINESS.			PROPHYLAXIS FOR EYES.		
United States.	Foreign.	None.	1 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	Unknown.	Live Births.	Still-births.	Excellent.	Fair.	Dirty.	Yes.	No.	Unknown.
–	–	2	–	–	–	2	–	–	3	–	2	–	–	1	–	1
–	1	–	–	–	–	1	–	–	2	–	–	1	–	–	–	1
–	–	1	–	1	–	–	–	–	12	–	1	–	–	–	–	1
–	7	2	1	–	3	2	1	2	140	2	4	3	2	3	3	3
4	–	2	1[1]	–	4	–	–	1	118	–	4	1	1	3	2	1
–	1	1	–	1	–	1	–	–	53	–	1	–	1	2	–	–
1	1	1	–	–	–	–	–	3	42	–	3	–	–	3	–	–
–	–	1	–	–	–	–	–	1	–	–	–	–	1	–	1	–
5	10	10	2	2	7	6	1	7	370	2	15	5	5	12	6	7

[1] Six months.

ing School (six months), and 1 at the United States College of Midwifery, Scranton, Pa. (six months). No information could be obtained regarding the last two schools. One Finnish midwife stated that she had been trained at the Bellevue School of Midwifery, New York.

The foreign-trained midwives gave information regarding their training as follows: the Austrian midwife was trained at Buda Pesth, Hungary (? years; no diploma); 1 Italian was trained at Padua, Italy (4 years); three Italians at Naples, Italy (1 for four years and 2 for two years); 1 in Rome, Italy (four years); 1 in Bologna, Italy (four years), and 1 in Italy (place unknown, four years); 1 Portuguese was trained at Lisbon, Portugal (four years), and 1 Finnish midwife trained in Helsingfors, Finland (? years).

The foreign-trained midwives are very proud of their diplomas which are very large and elaborate. A number of the Italians expressed the desire for an American diploma, so that they could show it when they returned to Italy. One Portuguese midwife wanted an American diploma or license, but for a very different reason. She felt that the untrained midwives could not obtain one, and therefore she would get more work.

The Finnish midwife, in telling of her work, stated that she always wore a wash dress when she was caring for a patient, and that she scrubbed her hands ten minutes with soap and water and a brush, and then rinsed them twice in a solution of corrosive sublimate, before making any examination, which shows a very clear idea of the value of asepsis.

The following is an interesting letter from this midwife, and is in answer to a request for additional information which had not been obtained when she was visited. The letter was evidently written by some other member of her family.

> Dear Miss ——: — Mrs. —— found your note but she is unable to read or write English language and makes it hard for her to be able to do much amongst English people. Mrs. —— has had her training in Helsingfors, Finland; she has taken a special course in obstetrical work. The Doctors in Finland do not go out on confinement cases. They will come in wealthy homes, but they will first ask you if you have your nurse. And in other cases if the nurse sees it necessary and she calls, they will come. So all the foreign born Finnish people are more used to having a woman around at that time and then midwives take care of baby and mother for as long a time as they are asked to. So if they call a Doctor they would have to have an extra woman to care for mother and baby after confinement.
>
> I think I have answered all questions and if there are more will write again.
>
> Yours very truly,

The two midwives trained, respectively, in Rome and Bologna stated that the hospitals in these cities contain about 100 beds each, which are always filled with obstetrical patients. The training extends over a period of four years, or as much longer as is necessary for the midwives to pass the required examinations. They were taught by the "professors" (head doctors) of the hospital, and their work was supervised by them. The "professors" deliver the abnormal cases, but the midwives have the opportunity of observing them. Midwives are taught how to make external and internal examinations, and the thoroughness of this training is evidenced by the fact that one physician told the investigator that he had never known either of these two midwives to make a wrong diagnosis; also that they have almost no lacerations from their deliveries.

Four years is a much longer training than either the English or American schools require, but as many of the Italian women enter the hospitals with a very limited education, much time has to be devoted to supplying this deficiency.

In the United States the service rendered by midwives is variable in amount and kind. It usually includes the actual delivery and at least five or six postnatal visits for the purpose of giving nursing care to the mother and baby; it may also include household duties, such as washing and cooking, care of children, and the entertainment of friends and neighbors. It seems that midwives are gradually decreasing the amount of work which they do for a patient, especially the Italian midwives, but inasmuch as the trained Italian midwives appear to be quite skillful in their work, and yet adhere to national customs, this does not seem to have a deterring effect on their employment.

The Bellevue School of Midwifery in New York City is a department of the Bellevue Hospital, but is on separate grounds and has its own management. All abnormal cases which come to the school are transferred to the Bellevue Hospital. The student midwives are taught how to give prenatal care and examinations, under the direction of the physician in charge of the school. A trained nurse is in charge of the midwives' work, and does much of the teaching of nursing subjects. All student midwives are required to observe 100 cases and to deliver at least 20 (not less than two of which must be primiparæ), under supervision, before they can be graduated.

The school has a large outdoor service besides the patients delivered in the hospital. Every outdoor patient is visited at least once by the house physician, and as often thereafter as he feels is necessary.

The obstetrical outfit which is taken out for deliveries is carried in a metal sterilizer instead of the usual bag, and it thus serves the double purpose of sterilizer and bag. This is an important item where the deliveries are in the homes where even the ordinary conveniences are lacking.

The persons in charge of this school feel that one of its most important functions is in teaching the midwives their limitations, so that they will not attempt to handle any but normal cases. The outdoor service is also valuable in teaching the midwife to properly handle a delivery in homes similar to ones in which she will practice when leaving the school. The following statement from a leaflet issued by the school gives in detail its purpose and requirements: —

General Statement.

The Bellevue Hospital Training School for Midwives has been organized by the Trustees of Bellevue and Allied Hospitals, to give women who desire to practice midwifery an opportunity to secure a practical training to fit them for this work.

The length of the course is six months.[1] A portion of the time will be spent on the outside service, attending the patient in her home under the direction of a physician and nurse.

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[1] This has now been lengthened to eight months.

This training is to prepare women to conduct normal labors and to give nursing care to mothers and infants during the first ten days or two weeks following delivery, and to enable them to recognize abnormalities and complications, in order that a physician may be summoned in all cases which depart from the normal.

REQUIREMENTS.

Candidates wishing to take a course of instruction must apply personally at the school, where the necessary information and blanks will be furnished them. These blanks must be accompanied by a physician's certificate of health and of recent vaccination, and the names and addresses of two persons, not relatives, who have known the applicant for a number of years. All blanks must be returned filled out in the applicant's own handwriting. The acceptable age is from twenty-three to thirty-five. Every candidate must make application personally, at which time the general medical superintendent, or his assistant, will decide upon her fitness for training.

All candidates must serve a period of probation of from two weeks to one month at the discretion of the superintendent. Their acceptance as pupils will depend entirely upon the character of work performed and general fitness, regardless of the peculiar circumstances of any particular case. The decision when rendered is final. The qualifications of pupils for work and the probationary period are determined by the general medical superintendent; he may also, with the approval of the Board of Trustees, dismiss any pupil at any time for cause. Pupils during their term of service will be under the rules and regulations governing the hospital. They must wear the prescribed uniform.

HOURS OF DUTY.

Pupil midwives will serve at least ten hours daily; when on night duty, twelve hours. Half days will be arranged by the school supervision as the work permits. No provision will be made for vacations. Absences are not approved except for extreme causes. Time lost through illness must be made up. In case of illness the pupils will be cared for in the wards of the hospital.

INSTRUCTION.

The course of instruction will include the theory of obstetrics, but will be eminently practical in its nature. The instruction will be given very largely by means of demonstrations. As a means of teaching the pupils practical housekeeping, they will be required to take the entire care of the house and equipment.

OUTLINE OF COURSE.

(1) The principles of hygiene as regards the home, food supply, person, etc.

(2) The elementary anatomy of the female generative organs and pelvis, including pelvimetry.

(3) Pregnancy and principal complications, including abortion.

(4) Symptoms, mechanisms, course and management of normal labors.

(5) Presentations; palpation, auscultation and vaginal examination.
(6) Antiseptics; their preparation and use.
(7) The management of the puerperium, normal and abnormal.
(8) Hemorrhage; varieties and treatment until arrival of doctor.
(9) Puerperal fevers; nature, causes and symptoms.
(10) Preparation of dressings and room for labor, including baths, douches, irrigations, catheterization, care of instruments, etc.
(11) Drugs as used by midwife.
(12) Care of infant, with special emphasis on eyes and cord.
(13) Infant feeding and home modification of milk.
(14) Care of infant apparently lifeless.
(15) Ethics, rules and regulations of board of health, legal status, etc.

DIPLOMAS.

A diploma will be given to the pupils who complete satisfactorily the prescribed course and have successfully passed the examination given at the close.

Reasons given by Mothers for Employment of Midwives. — A number of mothers who have employed midwives were visited to ascertain the type of women who employ midwives, and to discover their reasons for preferring her to a physician. These women were even more suspicious of strange visitors than were the midwives. It was only when accompanied by some one whom they knew that any information was obtained.

Various reasons for employing a midwife rather than a physician were given, the principal ones being economy and custom. It was stated that the midwife is cheaper and renders more service than a physician, even when his work is supplemented by a visiting nurse.

Some of the mothers also stated that they prefer a midwife because she speaks their language and knows their national customs. This in itself exerts a great influence with families who employ midwives, as it is less upsetting to the routine family life to have her than to have a physician or even a visiting nurse.

Some of the women who had employed a physician for some pregnancies and a midwife for others stated that their husbands had no objection to a woman physician, but would not allow a man physician to care for them. A number of the women said they had no choice as to the selection of their attendant at confinement, as their husbands made all the arrangements.

Opinions of Clergymen. — Foreign-born clergymen, working among people of their own nationality, were unanimous in the support of the midwife. The same reasons — economy, custom and the amount of service rendered — were given by them as reasons for her employment. In one large Polish community the clergyman frankly stated that he knew and approved of the midwives working among his people, but refused to give any information regarding them, as he feared that the information might be used to injure them.

Opinions of Physicians. — Early in the investigation a letter was sent to 292 physicians asking for the names and addresses of midwives practicing in their communities, also for information as to the character of their work. To this letter only 30 physicians replied, which shows either a lamentable lack of interest on the part of the physicians in a matter in which they should be deeply concerned, or that they were suspicious as to the manner in which the information would be used.

Several physicians were later interviewed and gave valuable information. Opinions were secured from 42 physicians, but several showed a prejudiced attitude toward the midwife, and made very contradictory statements regarding her. For instance, one physician stated that all the midwives in his district were ignorant, illiterate, could not read or write either English or their own language, and that two had lately become registered nurses. Another stated that the midwives are "uniformly ignorant and careless, they are filthy, with no knowledge of asepsis, making vaginal examinations with unclean hands, and seem bereft of all conscience in their work. There are, as well, a great number of physicians that we could make the same charges against." Definite facts to substantiate many of the statements against the midwife could not be secured, and opinions regarding individual midwives vary so widely as to be quite valueless. For example, one physician reported to the investigator that a certain midwife was dirty, careless and had no idea of the proper way to handle an obstetric case. A social worker reported that this midwife was the only good one practicing in that district. When visiting this midwife, the investigator found that she and her home were clean and neat, her children were unusually clean, and that she was a recent graduate of the Bellevue School of Midwifery.

Fourteen physicians stated that training, licensing and supervising the midwife was the only practical way of meeting the situation. Three declared against such action and 10 stated that they had no suggestions or opinions on the subject. Following are some of the statements made by physicians, but many do not express an opinion as to the need or value of training and supervision.

"My opinion is that they are ignorant, some of them cannot read or write, and that they are dangerous to the public health and welfare."

"Have found them clean and well trained. Never yet made a wrong diagnosis."

"Some of them are doing good work but need supervision. They are doing the work that doctors do not want to touch. The people want them and will have them. Put the thing on a reasonable basis. I am in favor of training and supervision."

"Midwife doing good work; but for midwives, many mothers would go unattended. Midwives are here to stay; should have training and supervision. Poor people cannot afford to pay doctor's fees, and doctors cannot afford to work for the fees these people can pay, nor have they the time for this work."

"Why should ignorant, uneducated women take away the bread and butter from some good physician? There are some midwives in this town doing more work than some of the physicians, and have seven-passenger touring cars and the physicians only a Ford. There is really no excuse for having them. I am against them because they do not help people forward, but backward."

"Unusual type of woman."

"Does rotten work."

"May I suggest that I hope the so-called midwife will soon be a thing of the past. Why should we permit the untrained to perform the most vital part of medical art? The only reason that I can conceive is that it is a relic handed down."

"Capable, experienced and fully qualified to handle obstetrics as such."

"I am not in favor of licensing midwives when many cases are difficult enough to tax the skill of the physician. It is only to save money that foreigners have midwives, and they had better be treated free by town or city physicians or hospitals and get good care than be attended by unskilled midwives and get infected."

"It is a fact that among certain people, notably the Portuguese, midwives are commonly employed at the delivery to the practical exclusion of the doctor. The reason is that the husband prefers not to have a man attend his wife, and also due to the universal custom of having midwives in the Azores attend their women, the few doctors there either finding the work non-remunerative or considering it beneath their dignity. A study of the birth returns for the year will show that a very large proportion of the births are attended by midwives. Portuguese, Polish, Russian Jews, Syrians and other foreigners are the chief employers of midwives. The low rates charged in comparison may be a factor in their employment. I have been informed by a person who has analyzed the figures for the first year of all births in this community for a period of one year that there are more stillbirths and more obstetric accidents among those children attended by physicians than among those attended by midwives."

"I do not come in contact with any midwives, and do not know the names or addresses of any, so that I am unable to be of any assistance in your investigation. I wish you success in the matter, as I feel that it is a very important subject. While in New York recently I went through the Institution for the Training of Midwives, and was much impressed with the thoroughness of their work and the care spent in their training. If we are to have them with us at all, it seems to me we should adopt some similar plan as that which is being used in New York."

"Having lately returned from overseas in the army I cannot give you the addresses of the midwives, but believe that those who have been trained in the schools here or abroad are qualified to do the work, but many who have not been to school for that work do very unsatisfactory work. I believe that no one should practice midwifery in Massachusetts or anywhere else without having received training, and should be licensed by law. Such is the law in many European countries."

"The midwifery system of France and Belgium, with which many of the overseas men may be familiar, must be a very efficient one, as several obstetricians who were sent overseas with Red Cross Units found that the work was so well done by the midwives that their services in this particular kind of work were not needed, and that they could be of greater service elsewhere."[1]

"Replying to your letter of recent date will say I am still of the same opinion as expressed to you when you were down here relative to the 'midwife' question, and that was, you will remember, a 'hands off' proposition. My experience with them during my twenty-two years' practice here is that they fill a place that cannot be otherwise filled among the class of people that employ them. The reason is that they go among the poorer class of people who are unable to employ a physician at childbirth, and render assistance not only to mother during the birth, but fit in and do housework as well. The mortality in their work is no greater than that of the physicians here in the same work, and my experience has been that in case of trouble or abnormal conditions they always call in a doctor. The women doing this work here are intelligent and successful. To forbid them following this work will pauperize many of the families here, as it will compel them to call upon the town physician, for they could not pay a doctor, while if allowed to employ a midwife they could get along all right, and in some instances better than if they were compelled to get a doctor, for the midwife will help out with the household duties, and this is an item of considerable importance."

Other Opinions. — In one community where nine midwives are operating, doctors, nurses and social workers all agreed that the only logical and practical way of meeting the situation was through licensure and supervision.

A social worker among the foreign-born people stated that of the midwives known to her only two had any training; that "these two women seldom have accidents and little sepsis; they always call a doctor for abnormal cases, but one was thought to be doing abortions." (No proof of this statement was obtained.) "Some of the midwives are afraid to report births, as they think they are practicing unlawfully." She further stated, "There are two midwives who deliver a good many babies, but are afraid to report or to call a physician when complications arise. About four years ago a patient was very badly handled by one of these midwives, and mother and baby had to be taken to the hospital. The midwife had pulled the cord and practically inverted the uterus. The mother and baby both lived, but the mother has never since delivered a live baby."

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[1] Bulletin, New York City Health Department, May, 1919, p. 117.

A child-welfare nurse in one community makes the following statement: "We have about nine midwives working here among the foreign-born women. It seems strange that although there are physicians of the different nationalities, the midwife is always called by the mother or father in preference to the doctor. These midwives must be skillful, for their patients all live. There are two very skillful Italian women who have over 300 cases a year."

The consensus of opinion among the doctors, the visiting nursing association and welfare organization in this district seems to be that if the community offered adequate hospital service at a moderate price, and also free hospital service, the demand for the midwife would decrease. All were very vague, however, as to what they thought the family would do while the mother was in the hospital, as the midwife not only cares for mother and child, but keeps the machinery of the home in motion while the mother is in bed.

This feeling that adequate hospital facilities will solve the problem is not felt in another city, as is shown in the following statement from one interested in social work in that city: —

An analysis of 852 consecutive births, registered in the city clerk's office in the fall of 1919, showed the following facts: —

1. We find that 33 per cent of our total births in —— are attended by midwives, and so registered.

2. We find that less than two-thirds of our total births are attended by doctors, because in addition to the 33 per cent attended by midwives there are a number of births where there was no attendance whatever, and not all hospital births are delivered by doctors.

3. We find that 8 per cent of our births take place in hospitals. We have put this 8 per cent in the category of the births attended by doctors, making it plainly obvious that, of the births in private homes, considerably more than one-third are attended by midwives.

4. We know that at no time during this period under consideration, covering about three months, were the maternity beds of the —— Hospital taxed to their capacity, and we know that free beds in one hospital, set aside purposely for charity cases needing care at confinement, were vacant, no person asking for such care. Therefore we know that it was not poverty that compelled the women of this city to use midwife service. In case it is suggested that the women were afraid to use hospital service, and yet were too poor to employ a doctor at home, it may be said that midwives *never* give free service, and that persons too poor to employ a midwife always ask for a physician in the employ-

ment of the city, thereby getting a doctor's services free. The city has doctors who are constantly used by the poorest women in the city for their confinements.

In case it is said that midwives are used because foreign women object to the presence of a male attendant at birth, the argument stands confronted with the fact that there are two extremely competent women doctors in the city who take obstetrical practice. They take free cases as far as their moderate financial circumstances permit, and are also willing to go into the foreign homes of poverty for a reasonable fee. They do not have a large practice.

Poverty, you see, *prevents* the use of the midwife.

5. We find that practically *no* French-named people in the city employed a midwife. Some are confined in hospitals, some used the free city physicians, but they *all*, with one or two exceptions, used doctors for confinement.

6. We find that the very great majority of the Portuguese-named people in the city used midwives. Some of the very poorest used the free city doctors; some had *no attendant* whatever, and a few went to hospitals, but the very great majority used midwives. This is true also of the Polish people.

7. As about one-third of the births in —— are Portuguese, the great use of the midwife is thus clearly explained. It is *not* a financial matter but a racial characteristic or custom. The great mass of our French population is not richer than our Portuguese.

8. The few non-Portuguese births which used midwives were English-born women, with two or three American-born women who may have had special individual reasons for so doing. These were too few to count. There were also a few Syrians.

9. In April, 1914, a modern pregnancy clinic was opened in the out-patient department of —— Hospital, for the express purpose of eliminating the midwife. This clinic is still in operation and offers excellent obstetrical, prenatal, postnatal, medical and nursing care for a moderate fee. It is under the charge of a physician specializing in obstetrics.

This clinic has not accomplished its object, — the elimination of the midwife, — as the foreign-born women among whom the midwife works do not patronize these clinics.

Midwifery in the United States. — In the United States the supervision of midwives has existed for such a comparatively short time that the results of such supervision, compared to the problem of maternal and infant mortality as a whole, have not been obtained. Even in New York City supervision has existed only since 1907, and there have been so many factors which have been instrumental in lowering the mortality and morbidity rates that it would be unfair to select any one as being entirely responsible for the great decrease which has occurred. However, considering the fact that New York is the only city which has trained and supervised midwives for any length of time, one may assume that this control of the midwifery practice has been responsible for a share in the reduction of the death rate among mothers and babies in that city.

The New York School of Midwifery has been most successful in its work, and Dr. Josephine Baker of the Division of Child Hygiene, New York City Health Department, at the Children's Bureau Conference in 1919, made the following statement: —

> By the constant supervision of the midwife, and the elimination from practice of every midwife who violates our regulations, the number of practicing midwives has been reduced in ten years from 3,000 to 1,600. There is one sure way of eliminating the midwife and that is to educate her. Midwives are a condition and not a theory. In seeing what can be done with midwives it is essential to remember that poor people who have to deal with them are guided by practical considerations rather than by academic theories.
>
> I think that we can grant that whatever improvement has been made in obstetrical practice in New York has been counterbalanced by the improvement of obstetrical practice in every other large city in the country. Why is it, then, that in a study of the maternal mortality rates in seven large cities of the United States, made by the Children's Bureau, these rates were shown to be increasing or stationary in every one of them, with the exception of New York City, and New York City showed a decrease? The only difference between New York City and the other cities is our method of control of midwives.
>
> Nothing that I know of has changed in regard to the practice of doctors, but a very great deal has changed in regard to the practice of midwives. I am an advocate for the strongest kind of supervision, the most thorough control, and, above all, the education of the women to such a high standard that only a woman of extraordinary intelligence and ability will be able to be a midwife.

Experts and authorities on the subject of obstetrics state that the most efficient way of reducing the maternal and early infant mortality is through prenatal care. In New York City the midwives are playing no unimportant part in the prenatal work of the city, as during the year 1917 nearly 2,000 women were brought by them to the different prenatal clinics for examinations and treatment.[1] In this work the midwife is much more successful than the average visiting nurse, as she works among women of her own nationality, speaks their language, and knows and appreciates the customs and traditions which have come with the patient from the old country.

Dr. J. Clifton Edgar, consulting obstetrician at the Bellevue School for Midwives, in a report read at a meeting of the American Gynecological Society, May, 1918, said: —

> We have no desire to champion the cause of the midwife, but merely to make the best of a deplorable situation, and to render her less dangerous to obstetrics. So far as the city of New York is concerned, we venture the state-

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[1] Lee W. Thomas, M.D., Chief of Division of Midwives and Foundlings, Monthly Bulletin, New York City Health Department, May, 1919.

ment that at the present time there is no evidence to show that the midwife is a menace to safe obstetrics that the traditions of the past have painted her, always with the provision that she practice none but normal obstetrics. In our opinion this is due to the influence and better work of the graduates of the Bellevue School for Midwives and to the renewed activities of the Health Department of the city of New York. The influence of 235 Bellevue alumnæ is generally for good among the existing 1,656 midwives. We unhesitatingly affirm that an obstetric patient, normal or otherwise, is safer in the hands of a graduate Bellevue midwife than in those of the casual and indifferent practitioner. These midwives have been taught their limitations, not only what to do to the best of their ability, but what not to do; when to send the patient to a hospital or when to seek the aid of a trained obstetrician in the event of a serious delay or complication.

Dr. Lee W. Thomas, chief of the Division of Midwives and Foundlings, of the City Health Department, in a report dated May, 1919, on the "Supervision of Midwives in New York City," states: —

Any community having a large cosmopolitan population will invariably have practicing midwives, whether they are recognized by the authorities or not, as the people of European countries have, through generations, been attended at childbirth by a female attendant. This has created the prejudice against the male attendant. This prejudice is not only manifested by the wives but by the husbands also. The foregoing, combined with the natural horror of many for hospitals, eliminates the only two substitutes for the midwife provided by American communities. Again, the midwife offers certain advantages not found in the hospitals or offered by the male attendant. She visits the patient occasionally during her pregnancy, gains her confidence and reliance. The midwife stays with the patient from the time labor begins until the mother and child are in good condition. She visits the home daily after the child is born, attending the patient, bathing the baby, changing the bed, and, in many instances, aiding in housework and care of other children. Thus the patient gets the services of an attendant at childbirth, visiting nurse care, assistance with her home and family cares for less than she would have to pay for medical service alone. The mother is allowed to remain at home, and the home and family life are not disturbed. The midwife has filled a big gap in the provision of medical relief in large communities, as no city of the first class offers, or could afford to offer, the same service to the same number of women at childbirth as is given by midwives.

In the States having State laws governing the practice of midwifery, certain minimum standards are included in the laws, such as allowing midwives to handle only normal confinements, and a department of the State government is given the power to make additional requirements governing the practice of midwifery. In New York, New

Jersey and Rhode Island this power is placed in the State Health Departments, and in New Jersey it is a function of the Division of Child Hygiene of the Health Department, while in Rhode Island it is a function of the Board of Midwifery Examiners. Municipalities may make additional requirements and pass ordinances covering the same, provided they are at least equal to the standards required by the State. An example of this is New York City, which has adopted very elaborate regulations governing the practice of midwifery, which includes not only the supervision of the midwives, but of the school for midwives.

Within the last few years New Jersey has been very active in supervising the work of midwives, and has made great efforts to raise their standards of work. Dr. Julius Levy, director of the Division of Child Hygiene, State Health Department, Newark, N. J., reports a decided decrease in maternal mortality within the three years after the Department of Health had maintained supervision over the work of midwives: —

> In Newark, in 1914, 1 in every 188 mothers lost her life in childbirth, while in 1916, 1 in every 454 mothers lost her life in childbirth.
>
> At this time, in Boston, 1 mother out of every 153 mothers lost her life in childbirth.
>
> In New Jersey midwives attend 50 per cent of all births and as much as 88 per cent of some of the foreign groups, and it is interesting to note that of the maternal deaths for 1916, only New York City showed a better record than Newark.

Dr. Levy further states: —

> In 1914 there were 99 midwives, of whom 17 were practicing without a license.
>
> In 1917 we had 96 practicing midwives, instead of 99, of whom 2 are unlicensed instead of 17.

In summing up the work Dr. Levy makes the following statements: —

> In the three years there has been considerable improvement in the reporting of births by midwives. I mention this because the prompt and complete reporting of births is essential for accurate vital statistics and preventive child hygiene work.
>
> When we recall the homes in which the midwife works, the housing, social and economic conditions under which her families live, I see little reason for condemnation or elimination of the midwife, or the establishment of costly hospitals to care for all maternity cases. Our experience rather justifies our faith in their usefulness under proper supervision and co-operation.[1]

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[1] The American Journal of Obstetrics, January, 1918.

From the Supervisor of Midwives in New Jersey comes the following statement: —

> The midwife can be made a foundation stone in the child hygiene structure.

Dr. Woodward, Health Commissioner of Boston, and formerly Health Commissioner of the District of Columbia, has stated that since the passage of the law in the District of Columbia in 1896, requiring licensing and supervising of midwives, the number of deliveries by midwives has fallen from 50 per cent of the total number of births to 5.5 per cent in 1918, and the number of stillbirths in hospitals has increased; also that through the elimination of the poor midwife the general character of the work of the midwife has improved. Dr. Woodward is in favor of licensing and supervising midwives as being the only practical way of handling the midwife situation.

The August, 1919, bulletin of the Detroit Department of Health issued the following statement: —

> One-quarter of the babies born in Detroit during the year 1918 were delivered by midwives. For eight years the health authorities have labored to bring the midwife under proper control, and to-day she is an asset rather than a liability in health work.

Suggested Remedies. — Persons who feel that the midwife should be eliminated, and at once, have not yet advanced any feasible substitute for her. The plan of providing free hospital care for all women who now use midwives is not practical. A community may offer the very best in hospital and clinic facilities free to a woman, which she may and does decline and employs a midwife.

Another suggestion which has been offered is that only trained nurses be allowed to qualify as midwives, but it is very doubtful, with the standing which midwifery has in the United States and in Massachusetts, whether nurses would care to assume this additional responsibility. Furthermore, if nurses take over the work of midwives, the cost for services will be greatly increased, which many of the women now employing midwives cannot afford, and it is also doubtful whether nurses would be willing to give the amount and kind of service which the midwife now renders. The charge for the services of the nurse midwife would necessarily have to come dangerously near the cost of the services of the general practitioner, and it is very probable that this would cause a protest from the latter.

Then, again, rural communities do not and cannot have the resources of the larger cities. In the plans which have been adopted and which are now being carried out by progressive health departments to reach and provide for rural communities, the trained, licensed and supervised midwife can be used most effectively. New Zealand, which has the lowest infant mortality in the world, and ranks favorably with other countries in her maternal mortality, is training and using midwives extensively under licensure and supervision, and because it is difficult for a midwife to make a living in the rural districts, the government is establishing midwives in these districts on a salary basis, in this way enabling her to take cases, whether the mothers are able to pay for her services or not.[1]

Discussion.

The methods of meeting the midwife situation in the United States are: —

1. The elimination of the midwife through legislation.
2. Ignoring the midwife and allowing her to work unregulated and unsupervised.
3. Licensing and supervising the midwife.
4. Training, licensing and supervising the midwife.

The first method, the effort to abolish midwives through legislation, which is in vogue in Massachusetts, seems to me not only impossible but undesirable. As long as we have immigration from countries where the midwife is recognized and firmly established, and as long as these immigrants bring with them the social customs and traditions of their country, so long will the midwife exist. Whether they do good work and become an asset to a community, or work surreptitiously, depends entirely upon the intelligence with which the community meets the situation. I am firmly convinced that no legislation can ever be enacted which would compel a woman to accept the services of a physician or other attendant against her wishes; neither can any law be enforced which would forbid a neighbor or relative to assist at a confinement.

Legislation which cannot be enforced is one of the most effective ways of instilling into the minds of our foreign born a disrespect and a disregard of all the laws of the country. If you cannot enforce one law, why should you expect to enforce another?

The second way of meeting the situation, that of ignoring the midwife and allowing her to practice as she will, shows a criminal disregard by the community for the lives, health and well-being of its women and children, and such an attitude is indefensible.

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[1] Report of the Government Health Work in New Zealand, 1918.

The third way, which licenses and supervises but does not provide training, has for its primary object the ultimate elimination of all midwives, and therefore assumes that all midwives are a menace to the life and health of mothers and babies. This assumption has not been justified in communities where midwives have been properly trained.

The fourth way, that of training, licensing and supervising the midwife, seems to have produced good results in the different communities where this method has been adopted.

Trained and regulated midwifery has resulted in the establishment of definite standards of work, which eliminate the ignorant and unfit and allow the capable and efficient to practice conditionally.

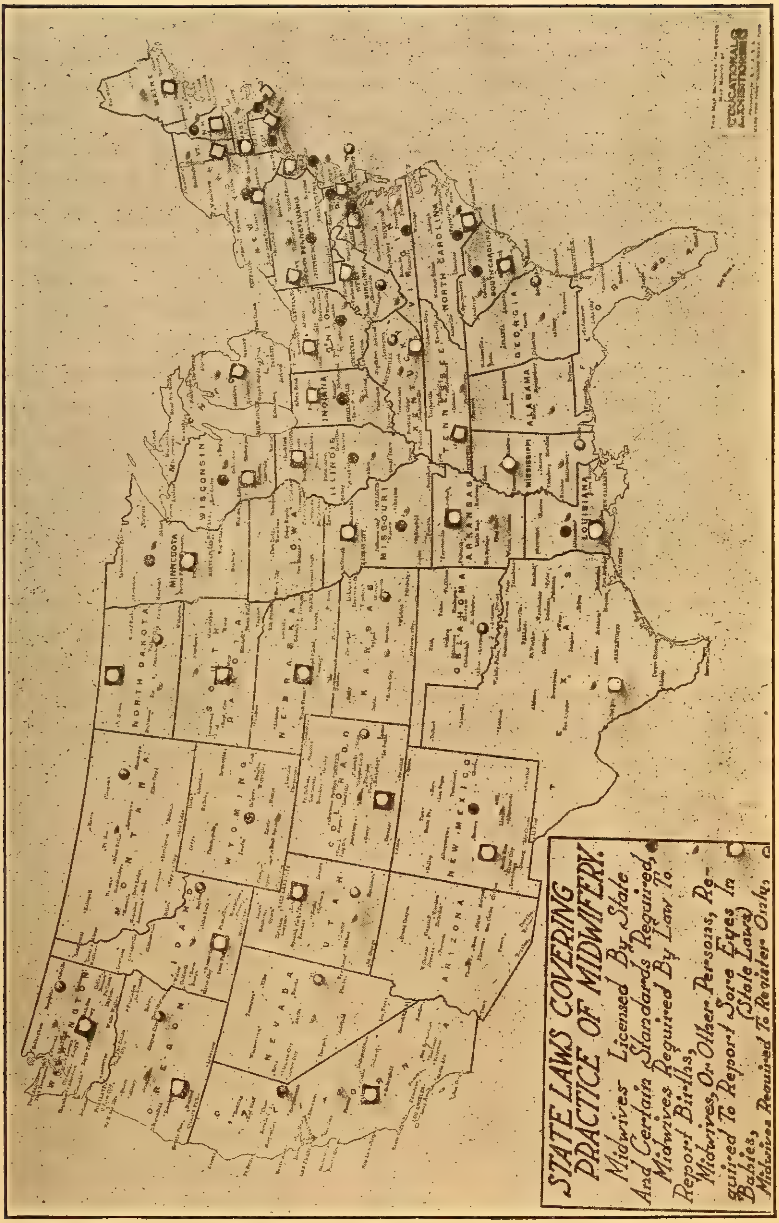
Another result of licensure and supervision has been more complete birth registration, which is one of the essentials in any child-welfare program.

This investigation has shown that a very definite need for the midwife exists in Massachusetts, and, due to the large foreign-born population, the possibility of eliminating her entirely is a remote one. During the process of Americanization, and while the foreign-born people are being introduced to the resources of the State, it is the responsibility of the State to safeguard their lives and health, and Massachusetts is not safeguarding the lives and health of her foreign-born women and their children when she allows the midwife to practice among them without regulation and supervision.

Massachusetts has proven that the midwife cannot be eliminated through legislation, and that such an action may deter the trained and efficient from operating, but has no such deterrent effect on the ignorant and unskilled. The only practical legislation is that which would provide an efficient system for the training, licensing and supervising of the midwife.

Elaborate programs of public health work have been formulated by the State Department of Public Health, municipal boards of health, the American Red Cross and various other organizations, for the protection of mothers and babies, in which the trained and supervised midwife, if asked to co-operate, could render valuable service. One social worker, as has been previously quoted, stated: —

> In April, 1914, a modern pregnancy clinic was opened in the out-patient department of the hospital for the express purpose of eliminating the midwife. The clinic is still in operation and offers excellent obstetrical, prenatal, medical and nursing care for a moderate fee. It is under the charge of a physician specializing in obstetrics.


STATE LAWS COVERING
PRACTICE OF MIDWIFERY.
Midwives Licensed By State And Certain Standards Required,
Midwives Required By Law To Report Births,
Midwives, Or Other Persons, Required To Report Sore Eyes In Babies, (State Laws)
Midwives Required To Register Only,
NORTH DAKOTA
SOUTH DAKOTA
MINNESOTA
WISCONSIN
IOWA
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
NEW YORK
MAINE
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
LOUISIANA
ARKANSAS
TENNESSEE
KENTUCKY
MISSOURI
KANSAS
NEBRASKA
OKLAHOMA
TEXAS
NEW MEXICO
COLORADO
WYOMING
MONTANA
IDAHO
UTAH
ARIZONA
NEVADA
CALIFORNIA
OREGON
WASHINGTON
EDUCATIONAL EXHIBITIONS

This clinic is not patronized by the majority of the foreign population, neither has it eliminated the midwife.

The superintendents of two visiting nursing associations in Massachusetts volunteered the information that the maternity service among the Polish, Italians and Lithuanians has not increased during the time such service has been established, although the maternity service among other nationalities has increased very materially. In both these communities midwives are known to be practicing among the nationalities which do not use the maternity service. I feel that if the midwives of Massachusetts were licensed and supervised, the above clinics would tell a different story, and that the history of the New York prenatal clinics would be repeated. It is imperative that if the prenatal clinics are to perform adequate service among the foreign-born women, some method of approach and contact must be established and maintained between the clinics and the foreign-born women, and there is no better one at hand than the trained midwife.

The court interpretation of the present law is that the practice of midwifery is "an important branch of the medical profession," and is therefore open only to registered physicians, but Mr. Justice Rugg of the Supreme Court, in the Commonwealth *v.* Porn, 1916, states: "We are far from saying that it would not be within the power of the Legislature to separate, by a line of statutory demarcation, the work of the midwife from that of the practitioner of medicine. The statute now under consideration does not make that separation." This line of demarcation should be made if the lives of women and children are to be properly safeguarded.

THE FAIRY GAME.

By Jennie Van Heyson McCrillis.[1]

"There! I've failed again, and father said if I didn't pass this month I could not have that new wheel he promised me for my birthday. Oh, dear, I hate report cards! I try and try, and I can't get good marks in school. Guess it's because I'm always so tired, and teacher thinks I'm just stupid. I wish I didn't have to take this home for Father to sign. I know just what he'll say, and Mother will feel badly too."

John stood in front of the schoolhouse still looking at his report card as Mary came running out of the building.

"Hello, John," she called, "wait a minute and I'll walk home with you. What are you looking so sad about this lovely day?"

John tried to hide his card as he answered, "I failed again in arithmetic, and that means no wheel this month. What is that card you have?"

It was Mary's turn to look sad as she showed him the card she carried. "We had a great time in our room to-day," she said. "All of the children were weighed and measured, and Miss Brown put up a classroom record with all of our names on, and a place to record our weight every month. Did you know that what you ought to weigh depends upon your age and how tall you are? I am fifteen pounds under weight! Dear me, I wish I were as strong as some of the other children!"

"That is just what I was wishing," said John, as they walked on toward home. "I'm always tired and often my head aches, and folks think I'm just stupid and lazy."

As the children walked through the woods they saw some tiny little flowers which looked like fairy bells. They seemed to nod in the breeze. As they stopped to pick some, Mary said, "Oh, John, aren't they pretty! It seems most a shame to pick them. Mother says in olden times people believed that fairies and elves lived in the woods, and that where they passed these flowers grew. Don't you wish there were fairies in the world now?"

"Indeed I do," said John; "perhaps they'd help me to do something about this report card."

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[1] Copyrighted, 1921.

Just then a sunbeam slipped in through the trees, and the children heard a soft, silvery laugh, and there, right in the path of the sunbeam, stood a dear little fairy. She smiled at the children as she said, "Indeed fairies do live now, and they are always glad to help those who truly want them. I've been listening to you and I've decided that what you both need is a visit to Health Habit Land. Would you like to go?"

"Yes, indeed!" said both of the children at once.

"Very well," said the fairy, as she waved her wand over them, "follow me, and keep your eyes and ears wide open."

She led them through the woods, and soon they came to a door marked "Child Health." The Sunbeam Fairy knocked, and a voice said, "Who knocks at the door of Child Health?" The Sunbeam Fairy answered —

"Fairies brave, fairies true,
Two children dear have need of you."

"Enter and learn the way to health," said a sweet voice. Then the door opened, and oh, what a fairyland the children saw! A wonderful garden, with trees and fountains and flowers. A beautiful fairy came toward them. "Welcome to Health Habit Land," she said. "I am fairy 'Good Health.' The Sunbeam Fairy heard you wishing you were strong and well, but wishing is not enough. You must learn to play the Health Game and put its rules into daily practice. The fairies who help in this game live here in Health Habit Land. Would you like to meet them?"

"Oh, yes! Please may we?" said the children.

Good Health rang a little bell which seemed to set all of the flower bells in the garden to tinkling. An elf appeared at once. "Will you please ask the spirits of the Health Game to come and tell the children who they are, what they are doing, and the rules of the game?" said the fairy.

"Certainly," said the elf, as he bowed low, then started on his errand.

"Come and sit here with me," said Good Health, and she took her place on a little throne. "The fairies will soon be here." So the children sat down, one on each side of her, and the Sunbeam Fairy stood near to introduce the other fairies as they entered. First to arrive was an elf dressed in a robe made of bath towels, and on his head was a cap made of a wash cloth. In one hand he carried a pail of water, and in the other a cake of soap.

"This is the 'Spirit of the Bath,'" said the Sunbeam Fairy; "he will tell you why you ought to have a full bath more than once a week."

The elf bowed to the children. "I am the 'Spirit of the Bath,'" he said, "and soap and water are my chief helpers. In Bible days Moses made the bath part of the religious ceremony for the Children of Israel, and the ancient Egyptians and Greeks, too, believed that man ought to be clean when he came before his God. The Romans had beautiful baths built into their homes, and spent much time in them. The public baths of Rome were places of social gathering. The ruins of these baths are still to be found. In England there is an ancient order called the 'Knights of the Bath,' the name being derived from the ceremony of bathing practiced at the inauguration of a Knight, as an emblem of the purity required of him by the laws of chivalry.

"See," he said, as he put down the pail and held out his hand and arm, "the skin has millions of little mouths called pores. These are constantly throwing off the waste products of the body, and in order to perform their work properly must be kept open by frequent bathing. If one would be healthy, one must be clean. The first rule of the Health Game is a full bath more than once a week."

He stepped to one side, and the children saw a number of fairies come dancing in, each carrying a toothbrush. The leader came forward and bowed.

"Ah!" said the Sunbeam Fairy, "the 'Spirit of Clean Teeth' and his toothbrush brigade!"

"Yes," said the elf, "I am the 'Spirit of Clean Teeth.' The teeth have a very important part to play in the Good Health Game. Food must be thoroughly chewed if it is to be properly digested. Particles of food cling to the teeth and lodge between them. Germs grow very rapidly in the mouth, for conditions are just right. It is dark and moist there. If the particles of food are not removed they decay, acids are formed which work on the enamel of the teeth and soon there are cavities. Every child should visit the dentist at least once in six months to have his teeth examined, but every day he ought to brush his teeth thoroughly — for a clean tooth never decays. There is a right and wrong way to brush the teeth, and my toothbrush brigade will show you the right way."

At his command the little elves formed in line and brushed their teeth. First they placed their toothbrushes on the upper right teeth and brushed down, as their leader counted, "1, 2, 3, 4, dip." Then dipping their brushes in water they repeated on the upper left teeth and again on the upper front teeth — always brushing down. Each motion was taken eight times. They repeated this on the lower teeth, brushing up, and then brushed the inside of the teeth, not forgetting the little depressions between the teeth. John and Mary were very much interested, for it made a real game of the toothbrushing.

When the drill was over the Spirit of Clean Teeth said, "The second rule of the Health Game is to brush the teeth at least once every day."

"Oh, thank you," said Mary, as the elves sat down. "I'll be more careful of my teeth after this. I never knew they had so much to do with health."

A breath of fresh air blew into the garden and in danced a fairy sprite with rosy cheeks, her hair flying in the breeze, and a laugh on her lips.

"The 'Spirit of the Open Air,'" said the Sunbeam Fairy. "I knew she must be on her way."

"Yes," said the sprite, "I am the 'Spirit of the Open Air.' I bring health and strength wherever I go; one of my helpers is sleep. Children use up a great deal of energy during the day, as they run and jump and play. When night comes they need long hours of sleep, so that bodies and nerves may be rested for another day; but they need to breathe fresh air as they sleep, so windows must be wide open."

"But in the winter it is too cold to have the windows open," said John.

"No, indeed," answered the elf. "Put on warm night clothing and cover up well; in the morning you will feel as though you had been made over. Try it and see! The third rule of the Health Game is sleeping long hours with windows open. Here comes another friend of the children." In came a dear little fairy in white, carrying a stool and a milk pail.

"Oh!" said the Sunbeam Fairy. "Here is the 'Spirit of Milk,' a real friend of the children."

"Yes, indeed," said the fairy, as she sat down on her milking stool, "I am the children's friend. Milk is the food of all children. When they first come into the world, Mother's milk is best for them, but as they grow older, kind Mother Nature provides the milk of animals with which to feed them. In mountainous countries the milk of goats is used, for these animals are sure footed and can scramble about on the rocks where they find food for themselves. In this country the cows give us milk. It is a real food, and every child should have at least a pint every day, and, if possible, a quart."

"But I like to drink tea," said John.

"And I like coffee," said Mary.

"That," said Good Health, "is why you are neither of you as strong as you ought to be. Tea and coffee were never intended for children. They keep them from growing properly, while milk contains the factors which make children grow. The fourth rule of the Health Game is to drink as much milk as possible, but no tea or coffee."

"See," said the Sunbeam Fairy, "here comes the 'Spirit of the Garden.'"

A fairy dressed all in brown ran up to the children. "I am the 'Spirit of the Garden,'" she said. "I play a big part in the Game of Health. I have two groups of helpers. Here are the members of one group." As she called each name a fairy stepped foward: "Lettuce, Spinach, Carrot, Onion, Potato, Peas, Beans, Squash, Asparagus and Celery." Then they all joined hands and began to sing as they danced.

"Lettuce and beans and onions grow,
Carrots and chard and potato;
Spinach and celery, squash and peas,
Canned or dried or fresh if you please.
Tomato, asparagus and all the greens,
We bring good health to children,
We bring good health to children.
So open your mouths and let us in,
Health and strength to you we'll bring."

When the game was ended another group appeared bearing garlands of beautiful blossoms and fruits. "These," said the Spirit of the Garden, "are the fruits. They, too, are part of the Health Game. An apple a day keeps the doctor away, and the orange, pear, peach, prune, date, fig and ripe banana all help to keep you well." As she named them the fruits stepped forward and then all of them sang: —

"Sing a song of happiness
A body full of health,
All the fruits in season
On the pantry shelf;
When the door is opened, the children all will sing
'Give us fruits and vegetables,
They're fit for any king!'"

"The fifth rule of the Health Game," said the Spirit of the Garden, "is eating some vegetables or fruit every day."

"But who is this?" said the children as a beautiful fairy, dressed in soft green that seemed to ripple and flow, danced in. "She is the 'Spirit of Water,'" said the Sunbeam Fairy. "She will tell you her part in the game."

"I, too, have a very important part in the game," said Water, "for without me there can be no life. On a rainy day you see me as I come from the clouds, drop by drop, and sometimes in torrents. I form the great ocean, the rivers, lakes and tiny streams; waste lands become productive when I appear, for I make things grow. The fruits and vegetables of the garden depend on me, as do all living things. The human body contains 75 per cent of water, and this must be constantly replaced. So the sixth rule of the Health Game is to drink at least four glasses of water every day, for —

"Many drops of water
Taken every day
Keep our bodies healthy,
So the doctors say."

She took her place with the other fairies, as a big, happy, rosy-cheeked fairy came running in.

"The 'Spirit of Play,'" said the Sunbeam Fairy. "Did you bring your helpers with you?"

"Yes, they are coming," said the fairy, as she clapped her hands. A number of little elves and fairies came running in. They formed a circle and began playing a wonderful game. "They can teach you a number of games that can be played out of doors," said the Spirit of Play.

"But I like to stay indoors and sew," said Mary.

"That is all right in its place," said the Spirit of Play. "All girls ought to learn to sew and do such things, but all work and no play makes Jack a dull boy, or Mary an ænemic girl. All children ought to play out of doors part of each day. Play takes many forms. Here are more of my helpers." In came a fairy dressed in a tramping suit, — others followed in swimming, running, football, baseball and riding costumes. Each told of the pleasures of his particular sport.

"They all help in playing the Game of Health," said the Spirit of Play. "Games and sports help to form character, for children learn to play fair, to do teamwork, and to help each other. The seventh rule of the Health Game is playing part of every day out of doors."

"So you see," said Good Health, as the fairies took their places, "Health, Strength and Joy will come into your lives if you play the game and follow the rules carefully. Your body is a house in which you live. It must be clean inside and out; all waste products must be removed every day, and the eighth rule of the game is — a bowel movement every morning. Now that you have learned the rules and know the fairies, I am sure that you will want to not only play the game yourselves, but to teach the rules to all of your schoolmates, so that they may play the game with you. You all ought to know and sing 'The Children's Hymn to the Flag.'"

As she spoke a fairy stepped forward bearing a beautiful American flag, and standing at attention they all sang the hymn. At its close they disappeared, one by one, until only the Sunbeam Fairy remained. She waved her wand, and John and Mary found themselves again in the woods near the spot where the flowers grew. They talked over what they had seen, and John declared, "I'm going to play the game and I'll earn that bicycle yet."

"I'll play it too," said Mary, "and I'll gain that fifteen pounds."

That evening at supper John surprised his mother by asking for a glass of milk. She noticed that he cleaned his teeth and went to bed early without being told to do so. Mary's mother was delighted when her little daughter ate the vegetables which she had always declared she didn't like.

In school the next day they told Miss Brown what they had seen. She told them that the fairies were Good Health habits, who would always stay with them if they played the game. Soon the whole school was interested in and playing the Health Game. It became part of their daily life; it brought to all the children Health, Strength and Joy.

Note. — "The Fairy Game" has been dramatized, and copies may be obtained from the author, at 114 Allston Street, West Medford, Mass.

THE COMMONHEALTH.

Bimonthly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

The Midwife in Massachusetts. — It is with a good deal of the feeling of one steering between Scylla and Charybdis that one ventures on the subject of the midwife. Theory seems to point in one direction, while the practicalities of the case seem to point in another.

Miss Wedgwood's study of the midwife situation, which appears in this issue of The Commonhealth, seems to make certain points clear: first, the midwife is far from extinct in Massachusetts, in spite of our laws; second, the tendency seems to be for the poor rather than the good midwife to persist in the face of hostile legislation, — a natural enough situation; and third, many intelligent students of the problem in this State feel that we have as yet no adequate substitute to offer for the midwife.

There are probably few physicians in Massachusetts who do not feel that midwifery is an exceedingly important branch of the practice of medicine — or surgery, if you will. Yet an increasing number of general practitioners is unwilling to be burdened with the practice of midwifery. Many physicians do obstetrics only in order to hold their families. Moreover, there are not nearly enough well-trained obstetricians to go around. Add to this the fact that many foreign-born women insist upon having the midwife in preference to any one else, and it is not difficult to see why Massachusetts still has a midwife problem in spite of the fact that we are supposed to have abolished it by law.

The editor frankly confesses that he cannot reconcile himself to the prospect of the midwife as a permanent institution. Yet it must be confessed with equal frankness that she is apparently a necessary evil at the present time. That being the case, it is high time that she was under some degree of supervision.

If we are to do without the midwife ultimately, it is obvious that we must displace her in favor of some one who will give better service at about the same cost; and we must expect to be obliged to educate the foreign-born mother to accept this substitute. Seemingly this involves the establishment of more pregnancy clinics, more low-priced household attendants who will give the sort of household service the midwife gives, and a wide campaign of education.

AMERICAN PUBLIC HEALTH ASSOCIATION MOVES TO NEW YORK CITY.

The American Public Health Association on May 1 removed its offices from Boston to New York in order to promote closer co-operation with other national health agencies. A National Health Council was recently organized, embracing nine leading national agencies whose major functions relate to health. One of the first steps of the council was to arrange for the renting of two floors of the Penn Terminal Building at New York City. This building is at 370 Seventh Avenue, adjoining the Pennsylvania Depot. The following national health agencies will be housed there: American Social Hygiene Association, National Committee for Mental Hygiene, National Organization for Public Health Nursing, National Tuberculosis Association, American Public Health Association, Bureau of Social Hygiene, Child Health Organization of America, Maternity Center Association, New York Community Service, New York Diet Kitchen Association, National Health Council.

These agencies will co-operate in varying degrees in the use of a common library, multigraph, dictaphone, mailing, shipping and similar services, resulting in increased efficiency and decreased expense.

PROPORTIONATE MORTALITY, AGES 1 TO 14, MASSACHUSETTS, 1915–19, INCLUSIVE.

By Angeline D. Hamblen, A.B., Statistical Clerk, Division of Communicable Diseases, Massachusetts Department of Public Health.

In this table are given only those diseases for which the proportionate mortality was more than 3 per cent of all deaths. Diarrhea and enteritis caused 21.6 per cent of all deaths under 1. During the next year of life these diseases still held second place in the list, although the proportionate mortality dropped to 14.6 per cent. In each succeeding age group they are found lower in the list, until they disappear from the table at the end of the 4–5 age group. Bronchopneumonia caused 10.7 per cent of all deaths in the first age group, but in the next it heads the list, having caused 20.3 per cent of all deaths. It still holds first place in the 2–3 age group, although the proportionate mortality dropped to 13.6 per cent.

Proportionate Mortality, Ages 1 to 14,

	UNDER 1.			1-2.			2-3.		
	Disease.	Deaths.	Per Cent.	Disease.	Deaths.	Per Cent.	Disease.	Deaths.	Per Cent.
1	Congenital debility.	12,375	26.5	Broncho-pneumonia.	2,046	20.3	Broncho-pneumonia.	580	13.6
2	Diarrhea and enteritis.	10,091	21.6	Diarrhea and enteritis.	1,477	14.6	Diphtheria, .	477	11.1
3	Broncho-pneumonia.	5,014	10.7	Other pneumonias.	1,018	10.1	Influenza, . .	416	9.7
4	Malformations, .	3,322	7.1	Tuberculosis (all forms).	757	7.5	Other pneumonias.	379	8.9
5	Other pneumonias.	1,828	3.9	Influenza, . .	753	7.4	Tuberculosis (all forms).	369	8.6
6	– –	–	–	Measles, . .	627	6.2	Diarrhea and enteritis.	361	8.4
7	– –	–	–	Whooping cough,	503	5.0	Measles, . .	207	4.8
8	– –	–	–	Diphtheria, .	476	4.7	Whooping cough,	168	3.9
9	– –	–	–	– –	–	–	Burns, . .	168	3.9
10	– –	–	–	– –	–	–	– –	–	–
	Total deaths at stated age.	46,738	100	– –	10,095	100	– –	4,276	100

Children in the second age group are coming in contact with more people, and consequently the communicable diseases appear. Diphtheria caused 4.7 per cent of all deaths between 1 and 2. In the third year it caused 11.1 per cent, and in the next three age groups it heads the list.

Influenza and tuberculosis (all forms) first appear in the 1–2 age group. They continue to have about the same proportionate mortality until, in the 10–14 age group, tuberculosis (all forms) heads the

Massachusetts, 1915–19, inclusive.

3-4.			4-5.			5-9.			10-14.		
Disease.	Deaths.	Per Cent.	Disease.	Deaths.	Per Cent.	Disease.	Deaths.	Per Cent.	Disease.	Deaths.	Per Cent.
Diphtheria,	436	15.3	Diphtheria,	350	16.4	Diphtheria,	1,023	16.6	Tuberculosis (all forms).	471	12.5
Influenza,	281	9.9	Influenza,	203	9.5	Influenza,	578	9.4	Influenza,	413	11.0
Broncho-pneumonia.	259	9.1	Tuberculosis (all forms).	173	8.1	Tuberculosis (all forms).	512	8.3	Organic heart disease.	312	8.3
Tuberculosis (all forms).	243	8.5	Other pneumonias.	154	7.2	Vehicle accidents.	443	7.2	Other pneumonias.	277	7.4
Other pneumonias.	199	7.0	Broncho-pneumonia.	129	6.0	Other pneumonias.	367	5.9	Vehicle accidents.	214	5.7
Diarrhea and enteritis.	174	6.1	Burns,	110	5.2	Organic heart disease.	262	4.2	Diphtheria,	206	5.5
Burns,	156	5.5	Scarlet fever,	92	4.3	Broncho-pneumonia.	254	4.1	Drowning,	204	5.4
Measles,	108	3.8	Vehicle accidents.	90	4.2	Drowning,	232	3.8	Appendicitis,	199	5.3
Vehicle accidents.	95	3.3	Diarrhea and enteritis.	83	3.9	– –	–	–	– –	–	–
– –	–	–	Measles,	72	3.4	– –	–	–	– –	–	–
– –	2,839	100	– –	2,131	100	– –	6,170	100	– –	3,765	100

list, having caused 12.5 per cent of all deaths. Influenza came into this table because of the great epidemic in 1918–19. At no other period, probably, would it have had so high a mortality rate.

Between 2 and 3, children are beginning to run about and are attracted by fire, with the result that burns caused 3.9 per cent of all deaths. In the next year of life children get farther away from home and play in the streets to a greater extent, and vehicle accidents caused 3.3 per cent of all deaths. In the next two age groups vehicle accidents have an increased proportionate mortality.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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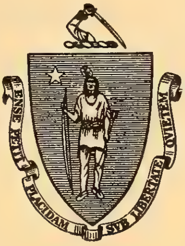

BI-MONTHLY BULLETIN

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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A SUMMARY OF SOME RECENT HEALTH LEGISLATION.

By Merrill Champion, M.D., C.P.H., Director, Division of Hygiene, Massachusetts Department of Public Health.

DURING the last two or three years there has been comparatively little legislation accomplished on health subjects, though certain laws which have passed have been of far-reaching importance. Only too frequently permissive or even mandatory legislation is enacted which is not taken advantage of by those whom it is designed to benefit. It is seldom true that any large part of the public appreciates the possibilities of the health measures which are from time to time placed upon the statute books. This summary is intended to point out some of the broader aspects of recent health legislation.

School Nurse Law.

Massachusetts early saw the need of a universal system of medical school inspection. It will be recalled that medical school inspection in this country began in Boston in 1894. In 1906 a State-wide system of compulsory medical school inspection was put into effect. Unfortunately, in 1906 school nursing was not sufficiently well known to be included in the medical school inspection law. Thus a most important phase of the work was not officially recognized. To be sure, some cities and towns have had school nursing service, but, if obtained legally, it had to be under the so-called "district or other nurse" law; or the school nurse had to be employed officially as a teacher of hygiene.

Several attempts were made within the last few years to amend the school inspection law so as to include school nurses. This effort was unsuccessful until this year. It is hard to see why, except that many people are suspicious of any change, and others are opposed to any scientific attempt to improve health conditions.

The school nurse law as signed by the Governor in May, which will consequently go into effect in August of this year, reads as follows: —

CHAPTER 357.

AN ACT PROVIDING FOR THE APPOINTMENT OF SCHOOL NURSES IN THE PUBLIC SCHOOLS.

Be it enacted, etc., as follows:

SECTION 1. Chapter seventy-one of the General Laws is hereby amended by striking out section fifty-three and inserting in place thereof the following: — *Section 53.* The school committee shall appoint one or more school physicians and nurses, shall assign them to the public schools within its jurisdiction, shall provide them with all proper facilities for the performance of their duties and shall assign one or more physicians to the examination of children who apply for health certificates required by section eighty-seven of chapter one hundred and forty-nine, but in cities where the medical inspection hereinafter prescribed is substantially provided by the board of health, said board shall appoint and assign the school physicians and nurses. The department may exempt towns having a valuation of less than one million dollars from so much of this section as relates to school nurses.

SECTION 2. Said chapter seventy-one is hereby further amended by inserting after section fifty-three the following new sections: — *Section 53A.* A superintendency district formed and conducted under the provisions of section sixty, or a superintendency union formed and conducted under the provisions of sections sixty-one to sixty-four, inclusive, may employ one or more school physicians and may employ one or more school nurses; determine the relative amount of service to be rendered by each in each town; fix the compensation of each person so employed; apportion the payment thereof among the several towns; and certify the respective shares to the several town treasurers. A school physician or nurse so employed may be removed by a two thirds vote of the full membership of the joint committee. *Section 53B.* The towns comprised in a superintendency district or union employing, to the satisfaction of the department, one or more school physicians and nurses in accordance with the provisions of section fifty-three A shall be exempt from the provisions of section fifty-three requiring the appointment of such persons. [*Approved May 3, 1921.*

The law needs little explanation. However, for the benefit of school committees and boards of health, the following letter has been sent out by the Department of Education and the Department of Public Health: —

GENTLEMEN: — At the last session of the General Court a law was passed providing for the appointment of nurses in the public schools (chapter 357, Acts of 1921, see copy enclosed). This law becomes effective Aug. 2, 1921.

In view of the many questions that have been raised in regard to this new law the following typical questions and answers have been prepared for the information of local school officials and health officials charged with the administration of the law: —

1. To what municipalities does the law apply?

To all towns and cities of the State. Towns having a valuation of less than $1,000,000 may be exempted from the law by the Department of Education.

2. May two or more towns employ a nurse jointly?

Yes. A town not requiring a full-time school nurse may meet the requirements of the law by one of the following methods: —

(*a*) The law provides that a superintendency union may employ one or more school physicians and one or more school nurses. It is believed that many of the smaller towns will find it practicable to employ a school nurse through the agency of the superintendency union.

(*b*) A town may employ a nurse jointly with one or more towns.

(*c*) A town may employ a part-time nurse independently of other towns.

3. Who has jurisdiction over the work of the school nurse?

In a town the school committee has jurisdiction over the work of the school nurse. In a city the school committee has such jurisdiction unless the work of medical inspection is being conducted by the board of health. In the latter case the board of health has jurisdiction over the work of the school nurse. The school committee or the board of health, as the case may be, appoints, assigns and supervises the work of the school physicians and school nurses, and provides them with all proper facilities for the performance of their duties.

4. How much service on the part of the nurse is necessary in order to carry out the purpose of the law?

Although there is a wide variety of practice on this point, certain minimum standards have come to be very generally accepted as necessary. These standards as set forth at the International Conference on Child Welfare, held in Washington in 1919, call for one part-time physician and one full-time nurse for not more than 2,000 school children, or for one full-time physician with two full-time nurses for not more than 4,000 school children. These standards are established primarily for urban conditions. It is clear that in rural communities with schools widely scattered the number of pupils that can be properly cared for by the school nurse may not be more than half as many as could be cared for under city conditions.

5. Can a town employ a nurse whose salary is paid from private funds?

Since the provision of the services of the nurse in the public schools has now become a municipal responsibility under the law, it would appear to be highly desirable, from the standpoint of general policy and continuity of service, that the financial responsibility connected with this work be discharged by the town itself. It appears, however, that the town may legally employ a nurse whose salary is paid from private funds, provided the school committee has full control of her work in the schools.

6. Are the duties of the school nurse prescribed by law?

Not specifically. The law states, however, that the school committee shall cause every child to be examined at least once a year "to ascertain defects in sight or hearing, and other physical defects tending to prevent his receiving the full benefit of his school work or requiring a modification of the same in order to prevent injury to the child, or to secure the best educational results. . . ." As assistant to the school physician the nurse shares prominently in this annual medical inspection and in the following up of results.

The International Conference on Child Welfare, referred to above, outlined the duties of the nurse as consisting in giving instruction in personal hygiene and diet, making home visits to advise and consult with mothers concerning the principles of hygiene and nutrition, and in taking children to clinics with the permission of the parents. The nurse also assists the physician in controlling community diseases among the school children, and is, so far as possible, the teacher of health habits in the school and the home.

7. What qualifications are necessary for the nurse?

It is highly desirable that the nurse have the following qualifications: —

(*a*) That she be a graduate of a training school for nurses connected with a general hospital having a daily average of 30 patients or more, and a continuous training in the hospital of not less than two years. The training should include theoretical and practical instruction in medical, surgical, and hospital nursing, as well as practical experience. Training may be secured in one or more hospitals.

(*b*) If possible the nurse should have passed the examination for registration in Massachusetts.

(*c*) It is also desirable that the school nurse, especially when located in a community where her work cannot be professionally supervised, should have had some training or previous experience in public health work.

8. Where can nurses receive the training which especially qualifies them for public health work?

(*a*) In Massachusetts, at the School of Public Health Nursing, conducted jointly by Simmons College and the Boston Instructive District Nursing Association.

(*b*) Much practical experience may be secured through service with many of the Visiting Nursing Associations in Massachusetts.

9. Is the salary of the school nurse determined by law?

No. According to present practice in many Massachusetts communities the salary paid to public health nurses is approximately $1,500 for ten to eleven months' work. It is especially desirable that a reasonably good salary be paid to nurses in the smaller communities, since professional supervision is not afforded in such communities and nurses must have the best possible training.

10. Where can school nurses be procured?

Appeal should be made to one or more of the following sources: —

(*a*) School of Public Health Nursing, 561 Massachusetts Avenue, Boston.

(*b*) The Visiting Nurse Associations located in various parts of the State.

(*c*) The New England Division of the American Red Cross, 73 Newbury Street, Boston.

(*d*) The County Public Health Associations.

(*e*) State Department of Public Health, which can often aid in securing nurses.

The Department of Education or the Department of Public Health will be glad to answer any further inquiries that may arise in connection with this law.

Very truly yours,

LAW REGARDING THE EMPLOYMENT OF DISTRICT OR OTHER NURSES.

In 1911 a law was placed on the statute books which permitted towns to expend not over $2,000 for the employment of district or other nurses. This money was to be expended directly by the town through its selectmen, or under the direction of the board of health when authorized to do so by the selectmen. In accordance with this authorization certain towns of the Commonwealth thus expended money for various types of public health nursing, including school nursing. The limit of $2,000 soon began to prove onerous, however, in the case of some of the larger places. What seemed like a large sum to expend for this purpose in 1911 was found to be far too small a sum for a large town to expend in 1921, in view of the rapid strides which have been taken by the public within the last few years in the direction of better measures for the protection of the public health. Therefore an amendment to this law was introduced during the session of 1921 and finally passed. As amended, the law now authorizes towns to expend money for district or other nurses. No limit is set upon the amount which a town may decide to be necessary for its own protection. Following is a copy of the amended law as it stands at present: —

SECTION 5, CHAPTER 40 OF THE GENERAL LAWS, AS AMENDED BY CHAPTER 371 OF THE ACTS OF 1921.

A town may at any town meeting appropriate money for the following purposes: . . . (21) For the employment of district or other nurses. [*Approved May 9, 1921.*

PHYSICAL TRAINING LAW.

For the last few years great efforts have been made by those interested in the health of the child to get enacted into the law some measure which would make obligatory for the public schools activities which would tend to render our children more physically fit at the age when defects can most easily be corrected and good-health habits established. A comprehensive bill was introduced in 1919 as part of the recommendations of the recess committee on education of the Legislature. This bill was in some ways better than anything which was proposed later, in that it provided for a definite co-ordination of medical school inspection and the so-called physical education.

Much misunderstanding as to the purpose of physical education prevented the enactment of any bill until this year. A simple permissive bill was introduced during the legislative session of 1921 which was modified in committee and finally emerged as an amendment to the present school act, so that as it now reads indoor and outdoor games and athletic exercise are to be placed in the school curriculum on the same basis as spelling, arithmetic and other so-called academic subjects.

It would be futile to expect from such a law sudden revolution in the health habits of the children of Massachusetts. In fact, it is futile to expect such a revolution as a result of any legislation whatsoever. Appreciation of the importance of health habits and physical training must be a matter of slow growth. We have, however, now a mandate from the Legislature which makes it binding upon school committees in the different cities and towns to make an honest attempt, so far as it can be done, through the schools to raise the physical standards of Massachusetts children. It is to be hoped that the local school committees will recognize their opportunity and will further recognize the necessity for close co-operation between those in charge of physical education and those responsible for the medical examination of the school child. No physical training attains its maximum value unless checked up at all times by careful medical supervision of the child who is to be trained. Physical education entirely divorced from medical examination of the school child is only half a loaf, and while in some instances half a loaf is better than no loaf at all, yet as in this case it would be a great pity to be satisfied with half a loaf when the whole loaf might be secured so easily. The bill as finally amended and passed by the Legislature follows: —

Chapter 360.

An Act providing for physical training for pupils in the elementary and secondary schools of the commonwealth.

Be it enacted, etc., as follows:

Section one of chapter seventy-one of the General Laws is hereby amended by striking out the word "and", after the word "hygiene", in the tenth line, and by inserting after the word "behavior", in said line, the following: —, indoor and outdoor games and athletic exercise, — so as to read as follows: — *Section 1.* Every town shall maintain for at least one hundred and sixty days in each school year unless specifically exempted as to any one year by the department of education, in this chapter called the department, a sufficient number of schools for the instruction of all children who may legally attend a public school therein. Such schools shall be taught by teachers of competent ability and good morals, and shall give instruction and training in orthography, reading, writing, the English language and grammar, geography, arithmetic, drawing, the history of the United States, the duties of citizenship, physiology and hygiene, good behavior, indoor and outdoor games and athletic exercise. In connection with physiology and hygiene, instruction as to the effects of alcoholic drinks and of stimulants and narcotics on the human system, and as to tuberculosis and its prevention, shall be given to all pupils in all schools under public control, except schools maintained solely for instruction in particular branches. Such other subjects as the school committee considers expedient may be taught in the public schools. [*Approved May 3, 1921.*

AN ACT AUTHORIZING CITIES AND TOWNS TO ESTABLISH DENTAL, MEDICAL AND HEALTH CLINICS.

Closely allied to the measures already discussed is another which, although passed in 1920, should be thought of in connection with the 1921 laws, since it has a direct bearing upon the newer duties of local boards of health and the greater appreciation of their importance current among legislators. Under the statute in question cities and towns are empowered to establish dental, medical and health clinics, and to conduct educational campaigns in connection with them. This is a clear recognition of the fact that boards of health have greater responsibilities than that of attending simply to cases of communicable diseases which have already appeared among the citizens of a town. By this law the Legislature has clearly recognized the necessity for prevention of disease and the maintenance of health, and has also recognized that these functions are properly the duty of the community itself, and should be paid for by public funds administered through the legally constituted health agencies of the city and town, namely, the boards of health. Unquestionably, this statute authorizes communities to establish through municipal funds such things as dental clinics, nutritional clinics, baby welfare conferences and health centers of all kinds.

Right here, however, there is need of clear thinking on the part of the communities in order that future difficulties may be avoided. It would be most unwise if municipalities were to undertake, because of this law, clinics for the treatment of disease. The prevention of disease and the preservation of health are so clearly a community responsibility and offer such a great field in themselves that it seems most unwise for the municipality to undertake the work of treatment which can better be carried on by the practicing physician. It goes without saying that the family physician ought to be the chief mainstay of the health department, but it does not follow that his work should be taken over or interfered with by the community authorities. Consequently, it would seem reasonable that the activities carried on under the law to which reference is here made should include only clinics or conferences where the purpose is to educate the public to the need for better health protection, to point out to them what protection is needed, and to direct them to those who can best give the remedial care needed.

Another point is worth noting. As the statute reads it is clearly contemplated that all municipal activity in the direction of dental and nutritional clinics, baby welfare conferences and all other health measures of like nature, shall be carried on through the local board of health, unless, of course, provided for in other fashion by statute or city charter. Much confusion has arisen in the past in certain towns because of the fact that health work, supported by municipal funds, was being carried on by other administrative boards.

This excellent law also recognizes a principle of great importance to our small towns, when it authorizes combinations of towns, acting through their boards of health, to combine to obtain the benefits of the act. More and more will it be recognized that the health of the citizen is a municipal responsibility. That being so, plain business sense dictates the need for small towns to co-operate to get what they cannot afford to get singly.

The law regarding board of health clinics is appended.

CHAPTER 100.

AN ACT AUTHORIZING CITIES AND TOWNS TO ESTABLISH DENTAL, MEDICAL AND HEALTH CLINICS.

Be it enacted, etc., as follows:

SECTION 1. Cities and towns may establish and maintain dental, medical and health clinics, and in connection therewith may conduct campaigns of general education relative to matters of public health.

SECTION 2. Cities and towns, acting through their respective boards of health, may unite and cooperate for the purpose of carrying out the provisions of this act, and may provide for the maintenance of clinics as aforesaid in one or more of the cities and towns so uniting.

SECTION 3. All appropriations made for the purpose of carrying out the provisions of this act shall be expended under the direction of the board of health of the city or town, and clinics established hereunder shall be conducted subject to such rules and regulations as the board may establish.

SECTION 4. Chapter six hundred and seventy-seven of the acts of nineteen hundred and fourteen is hereby repealed. [*Approved March 3, 1920.*

PROTECTION OF THE HEALTH OF MOTHERS AND INFANTS.

No legislation has yet been passed dealing specifically and adequately with the problem of health protection for expectant mothers and the prevention of maternal and early infantile mortality. The act discussed earlier in this outline, permitting cities and towns to establish dental, medical and health clinics, pointed the way for purely local action. It would hardly be fitting, however, in any discussion of legislation to deny mention of the efforts which have been made in behalf of legislation looking towards State-wide action.

The Special Commission, to Investigate Maternity Benefits, provided for by legislative resolve, reported to the special session of the Legislature last fall. The report was referred to the regular session of the Legislature beginning January of this year. Discussion of the commission's suggested bill and of the Spencer bill resulted in no definite action, and both bills were referred to the next annual session of the Legislature.

It will be recalled that, while the bill proposed by the commission called for prenatal, natal and postnatal visiting nursing service as a health educational measure open to any mother a citizen of the Commonwealth, the Spencer bill called for medical, nursing and hospital care for needy mothers, and, in addition, under certain circumstances, a cash benefit.

Discussion of this proposed legislation before the Legislature and elsewhere developed several disquieting aspects. One was the almost universal ignorance on the part of laity and medical profession alike as to the seriousness of the need for such care. Another was the distrust of part of the medical profession of any State intervention because of the supposed tendency of such intervention to turn into "State medicine," by which, presumably, is meant control by the State of the general practice of medicine.

The whole subject has been so befogged by argument, characterized more by vehemence than logic, that it seems worth while to restate the problem in its simplest terms.

Measures have been proposed which would offer more care to mothers before and at the time of confinement, the need of such care being evident because —

1. The maternal death rate of Massachusetts is increasing rather than diminishing.

2. We know that there is a large maternal morbidity as the result of childbirth.

3. The death rate of infants under one month of age is not diminishing at all, although for years there has been a steady decrease in mortality among older infants.

These statements are merely facts based on reasonably reliable statistics and on information current among practitioners who see many instances of the after results of pregnancy. It can hardly be called logical argument to deny *in toto* these facts, as some have done. The real question is, what can be done, if anything, to remedy conditions as we find them?

There are certain general factors which are constantly tending to improve these conditions. Unquestionably, our better medical schools, our better training schools for nurses, and our improved hospital facilities are doing much. Some factor, nevertheless, has thus far been potent enough to neutralize the good effect for which the improvement in medical facilities has been responsible. Just what that neutralizing factor is, is a matter upon which opinions differ. There is, at any rate, reason to believe that the factor of civilization itself, bringing in its train a more complicated and nerve-breaking life for women, at least plays a part.

Out of the confusion of ideas, however, one thing stands clear. In communities where intensive prenatal, natal and postnatal nursing is offered the mothers, the maternal and early infant death rates drop. Clear-cut demonstrations of this have been made in New York and in Boston. Such demonstrations have never been tried on a State-wide basis; perhaps under such circumstances they would fail. There is only one way to demonstrate the feasibility of such measures and that is to try them. That is the only way we have ever learned the facts about anything. The dividends obtained in cities from the expenditure of money for prenatal and postnatal care have been such as to warrant the State to undertake similar activity on a State-wide basis.

THE A, B, C OF EATING.[1]

By Mrs. Alzira Wentworth Sandwall, Health Instructor in Foods, Massachusetts Department of Public Health.

"TELL me what you eat and I will tell you what you are" is a very wise old saying, for is not your body made from the food you eat, and is not your efficiency very largely dependent upon your physical condition? What kind of a body are you building? What kind of a body do you want?

Those who plan the troublesome three meals a day, which seem sometimes to come all too often, have a great privilege as well as a great responsibility, for upon them largely depend the health and efficiency of the nation. How many home-makers sigh and say, "If it were not for the eternal meal planning!"

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[1] Reprinted from Home Beautiful Exposition Magazine, April, 1921.

But meal planning no longer becomes a bore when one thinks of it in terms of health and sets one's self to provide meals that will make one's family one hundred per cent physically and mentally fit, and in so doing make them happy and useful members of society.

And after all, the planning of the diet is very simple. We must simply bear in mind that the food each day must furnish the material that is needed for the construction of the body. Only the material must be supplied, for the building goes on as if by magic.

It's a very odd thing —
As odd as can be —
That whatever Miss T. eats
Turns into Miss T.

If we would have the best results we must see that the foundation is strong, that the baby has the best food from the beginning, even before he is born, which means that the expectant mother must eat the right food.

What food shall we eat, do you ask? First of all, milk; it should be the first food to be bought and the last to be given up. It is the best food for every member of the family, and should be thought of in terms of health. It contains the best material for growth, and, in addition, all the other substances that are needed in the body. It contains very little iron, but the baby is born with enough iron to last about six months, and by that time iron can be provided by adding to the diet fruit juices. It is a wise plan to provide a quart of milk a day for every child, and the minimum should never be less than two cups. The requirement for adults is also two cups a day. This does not mean that every member must drink his allotted share; it may be given in soups, cream sauce, custards, etc.

If sufficient milk and one egg a day are eaten, very little meat will be needed. Children and elderly people are better off without meat, and the other members of the family should not eat it more than once a day.

Next to milk we must plan the diet so as to include plenty of fruits and vegetables. The expectant mother needs an abundance of these foods. The juices of fruits and vegetables should be added to the baby's diet early in the first year, and from that time fruits and vegetables in some form should find a place in the diet daily. Eat fruit, either fresh or dried, at least once a day, and plan to eat a potato and one or two other vegetables besides the potato every day, eating as many fresh vegetables during the week as possible. The fruits and vegetables are excellent sources of iron and of other elements necessary for growth and health, and also help to prevent constipation.

Bread, cereals and other grain products also hold an important place in the diet. The cereals which require cooking are the cheapest and most nourishing, and the same is true of the breads made from the whole grains. Eat cereal with milk for breakfast, selecting the cooked cereals most often, and eat at least one slice of whole grain bread and butter every meal. The grain products, like the fruits and vegetables, not only help guard against constipation, but also give bulk to the diet, which helps make it satisfying. Often hunger is due to too concentrated a diet.

Fat is indispensable in the diet, but should be of the right kind. The most easily digested fats are the uncooked fats, and next in order ranks properly cooked bacon. The most important fat is milk fat (butter and cream). Butter substitutes, such as oleomargarine, nut butter, vegetable oils, etc., may be used safely, but food fried in fats, or rich pastries and cakes, should be avoided.

Sugar is a valuable food if taken wisely. The sugars and fats are the flavor foods, and flavor is the soul of food! Sugar should not be taken in excess, or the appetite will be so satiated that other food will be refused. A great craving for sweets often indicates an insufficient diet or a perverted taste, due to wrong food habits. Enough sugar will be taken if sufficient milk is used, together with plenty of fruits and vegetables.

In addition to the milk, fruits, vegetables, cereals, whole grain breads, easily digested fats, and simple sweets, it is absolutely necessary to drink plenty of water. Form the habit of drinking a glass of water the first thing in the morning and the last thing at night, and drink at least four glasses during the day.

We must also know when and how to eat. If we are to obtain the best results we must eat regularly three times a day, and above all, we must eat a good breakfast. In spite of the fact that the morning is the time when the stomach is the most rested, it is very often the time when too light a meal, or no meal at all, is eaten. Start the day right by eating a good breakfast, eat a light luncheon if necessary, but be sure it is of good quality, "not all hay and no oats," and before the night meal rest a bit if possible. Eat slowly, chew thoroughly, and have plenty of good cheer at the meals. "Laugh and grow fat" is an old adage, full of truth, for the digestion is more complete if the spirits are joyful.

In addition to plenty of good simple food, eaten regularly three times a day, in an atmosphere of good cheer, get plenty of fresh air and exercise and take sufficient sleep and rest. Remember that it is easier to keep well than to get well.

WHAT THE PUBLIC HEALTH NURSE CAN DO FOR THE MOTHER.

By Cecilia Lemner, R.N., Nursing Assistant, Massachusetts Department of Public Health.

IN this paper I will offer for your consideration the most salient features of the subject, and must, of necessity, avoid details because of their number and far-reaching nature.

More or less frequently it must occur to those interested in the prospect of a public health nurse to put to themselves, in the form of a question, the title of this paper, to wit: What can the Public Health Nurse do for the Mother?

Let us take the possibilities in what seem to be the two perfectly logical divisions, the physiological (I mean the natural or normal functional phase) and the pathological, or that phase which pertains to disease.

Under the first great division, the physiological, let us consider when first the public health nurse can put forth an effort. This is readily answered as being the time when the wife learns that she is to become a mother, or when the mother learns that she is again to give birth. In other words, it is at this time that prenatal instruction should commence. You will note that we call this a normal, natural condition, and as such only should it be considered.

If the notice comes to the public health nurse as early as the second month, the explanation will be offered the mother as to the vomiting symptom, especially morning vomiting, and that it is a normal, physiological reflex due to the presence of the fœtus in utero. This symptom may be prolonged and become what is called persistent or pernicious vomiting. Here is the first instance of reference to the physician. To elaborate on this reference, the mother should be impressed with the wisdom of doing in a remedial way only that which is recommended by the doctor. Emphasis is given to this because of the ever-prevalent generosity and willingness on the part of the neighbors to advise.

It will be seen that instruction of this type at this time makes an effective and intelligent beginning, closing at the earliest stage the portal of mischief.

Ordinarily, the ensuing two or three months are periods of comparative quietude and comfort, the only instruction needed at this time being recommendations as to attention to the functions of bowels and kidneys, baths, and periods of exercise and rest. The patient must be warned against haphazard self-doctoring or the taking of this or that remedy, so often innocently recommended by concerned friends.

At this point the mother is to be enjoined from using clothing which constricts or gives discomfort in any degree to the changing outline of the body, for example, corsets and two-piece clothing with tightened waistband. The nurse will also stress the importance of personal hygiene, such as cleanliness of body and attention to teeth; and will emphasize recreation and entertainment which will divert the patient's mind from dwelling unduly on her condition. This makes for happiness, which is the companion of health.

Sometimes the return of vomiting about the eighth month of gestation causes some anxiety because of the approaching termination of pregnancy. Here, again, the public health nurse can explain in detail the recommendations of the physician.

In these last few months the expectant mother can be instructed as to the proper type of clothing for the new baby; also she can have explained to her at this time what articles should be obtained and what preparations should be made, so that the equipment for the day of labor will be suitable, complete and available, if the confinement takes place at home.

If the patient is to remain at home the public health nurse may influence her in a decision as to the lying-in room, considering the sunny exposure, ventilation, warmth and accessibility to conveniences.

During the time of confinement the nurse simply carries out in a routine way the orders of the physician.

Problem of the New-Born.

The problem of the new-born ceases to be complex, to a great degree, in the instance of the breast-fed baby, for here, with reasonable care of the breasts, nipples and the baby's mouth, almost all chance of infection is removed, and therefore to a marked degree digestive disorders are eliminated.

The mother can be informed of the fact that during the first three days the secretion of the breast is not really milk, but a substance known as colostrum, which quite evidently answers a purpose, as it is known to be laxative in its nature and helps to carry off what meconium or green substance remains in the intestine of the new-born. She is further to be informed that the establishment of the milk supply is attended with greater or less feverish symptoms, swelling and tenderness of the breasts.

In some instances the remnant of the umbilical cord is quite some time in drying and separating from the baby's body, and should receive such attention as will keep it clean and dry. The tub bath must not be given until such time as the process of separation is completed.

It is important that the clothing fit the body, loose enough for ventilation and free movement of the limbs, and snug enough to be warm, so that the body can adjust itself to atmospheric conditions and temperature.

The details of the bath, clothing and general care are best explained by actual demonstration.

The mother must not be too assiduous in trying to remove the so-called "cradle-cap," or the crusted accumulations on the fore part of the scalp. This can be removed in a reasonable time by anointing with olive oil at night and washing gently in the morning with soap and warm water, never using a fine comb or other rough method.

Regular hours of sleep and feed must be the rule of the new-born, with as little handling as possible, especially after feeding, though frequent changing of position while at rest is necessary to the proper development of the baby.

Let us now take up the second division, which we have designated as the pathological, or, in other words, that which has to do with disease. This we will subdivide as follows: (1) puerperal diseases, those which have to do with the mother both in the pregnant state and during the period immediately following her delivery; (2) diseases of infant life and diseases of childhood.

The nurse will explain to the mother that it will be necessary to have the urine examined at frequent intervals. What is meant by this? She will be told that in pregnancy sometimes there is an incomplete elimination from the system of poisonous products, and that their presence in the blood produces dangerous conditions, and that these conditions are forecasted in the urine. Headache, especially frontal headache, must always be referred immediately to the physician, as this also is an indication of danger, and it must be borne in mind that this condition, when neglected, may result in eclampsia, a disease characterized by convulsions, which may result fatally to both mother and fœtus. Eclampsia is liable to occur any time after the first few months, through the period of confinement, or even up to the tenth or twelfth day of convalescence.

Next to consider, in relation to the public health nurse, is the disease of the new-born. A daily examination of the baby should be made with a view to the discovery of any warning signs or any unusual symptoms which ought to be referred to the physician.

The eyes are one of the first considerations, and should one or both show signs of inflammation, the physician's attention should be called to the fact immediately. The nurse can then carry out the treatment, and, by demonstration, instruct the mother as to the care needed to prevent permanent injury and explain the delicate structure of the eye and the seriousness of any neglect.

In the event that the baby is fed artificially, the public health nurse can demonstrate to the mother how to put together the milk formula and how to change the same when occasion demands, always under the direction of a physician.

With the artificially fed baby there is always more danger of stomach and bowel disturbance than in the case of the breast-fed baby. As the remedial end of this is handled by the physician, it comes within the province of the nurse to indicate to the mother that exacting care must be given to the preparation of the food to preclude the possibility of infection in this way, and to make sure of the right proportions. Special instruction should be given as to care of the diapers, for the reason that neglect of this feature may produce discomforting inflammation of the skin.

In infant life, happily, we have comparatively little trouble from communicable disease, due, in all probability, to a degree of natural immunity and to a limited chance of contact, though unnecessary handling and promiscuous fondling and kissing are often productive of the contact which produces rhinitis or so-called "cold," which "cold" may become a factor in producing bronchitis and pneumonia.

As the baby grows to childhood and gets about to a greater degree in travel or in play the chances for contact with disease become greater and greater, and as a result, the ills common to childhood may be contracted.

A large part of the public health nurse's duty is to instruct the mother as to the danger of communicable diseases, also as to her relation to the public with regard to the proper isolation of her child when such disease is contracted. She must also be taught how to protect her child when she has knowledge of the prevalence of communicable disease in the community.

I am glad to say that the antiquated theory formerly held by mothers that it was necessary to expose their children to the so-called "diseases of childhood" has been exploded. This is due, in a large measure, to public health education and to the instruction given by the public health nurse in the homes.

Following along this line, it might be stated that recent investigations have shown that the death rate in whooping cough and measles in children of preschool age is alarmingly high, and therefore, with this fact before us, the mother must be instructed as to the vital importance of properly isolating the initial case of any communicable disease in the household. To elucidate to a further extent, it can be readily understood that if the disease is prevented at this age it will postpone the illness, if it must come, to an age which will approximate, at least, the time when the death rate is at its lowest, that is, twelve years.

The public health nurse through her relation with the child in the school is the big factor in bringing to the attention of the mother the importance and value of properly caring for her child's teeth, the necessity of a properly balanced diet, and the need of calling medical attention to errors of posture and other defects.

There are many instances in which defects of eyes, ears, nose and throat may need correction, where funds are not always available. These children the public health nurse can often group so as to obtain the services of a specialist at a minimum cost.

Then, too, the public health nurse is conversant with the methods of gaining admission to the different hospitals and clinics where those needing medical attention can obtain the same, and she can also interpret to the mother with dependent children the laws established for her aid.

The public health nurse, by virtue of the fact that she is trained and has experience, has a greater power to discover defects in children; also, by her friendly relations cultivated through frequent visits to the home, she is often of service in directing medical attention to such defects.

Oftentimes it is trying and difficult for the mother to perceive why it is necessary to extend quarantine; for example, in scarlet fever, when every evidence presented to her shows the child to be practically well. If it happens during the school term she is unable to see why it is that, when the child seemed well, it should be prevented from reentering school and associating with other children. In addition, she fails to see why a certain number of weeks is stipulated during which a child shall remain from school.

With this mother the public health nurse can spend time in explaining the fact that the germs of scarlet fever remain for long periods in the nasal passages, in the tonsillar tissue, and in possible discharges from both nose and ear, and that therefore the child is still a danger to others. Even, too, it is quite probable that the occurrence of a cold at the end of a period of convalescence may bring forth these germs to infect other children. And what mother, to whom this is explained fully, would want to run the risk of exposing other children to what her child has suffered, when, as a matter of fact, it might have been for this self-same reason that her own child incurred the illness? What is true of scarlet fever in this respect is also true of diphtheria, and thus it is that rulings have been made by health authorities demanding several consecutive negative cultures.

In conclusion it should be emphasized that the public health nurse is a real instructress and fills a position not to be dispensed with in the community. In other words, she completes the cycle of the community, individual and physician. She is as much a teacher of public health as the teacher in the public schools is of the fundamentals of ordinary science. She carries out the policies and disseminates the knowledge of the health authorities in a manner similar to that employed by school teachers, who must follow the outline laid down by the school authorities. She has a distinct scope of activity which, when adhered to faithfully, never interferes or antagonizes, but is always helpful.

VITAMINES OR ACCESSORY FOOD FACTORS.

By Mrs. Alzira Wentworth Sandwall, Health Instructor in Foods, State Department of Public Health.

UNTIL a few years ago we believed that if the diet contained right amounts of protein, phosphorus, calcium and iron, with enough fat and carbohydrates to supply energy, it was adequate.

Within the last few years research on animal nutrition has proved beyond a doubt that in addition to these foodstuffs there are at least three accessory food factors which must be present in the diet in order to maintain health and promote growth, and prevent the occurrence of deficiency diseases.

As far back as 1881, Lunen made the discovery that "whereas adult mice could live for several months in good health on a diet of milk, they invariably died within a month if they received a ration composed of what is believed to be the essential ingredients of milk, namely, casein, milk fat, milk sugar and ash," and he concluded that "mice can live quite well when receiving suitable food, *i.e.*, milk," but, as the above experiment demonstrated, they are unable to live on proteins, fats, carbohydrates, salts and water. It follows, therefore, that other substances indispensable for nutrition must be present in milk besides the above constituents.

Since that time Hopkins, a prominent scientist of England, and later Osborne and Mendel of Yale University, also McCollum and Davis of the Johns Hopkins University, and others, have discovered that there are at present at least three accessory food factors which are often called vitamines.

Foods providing vitamines.

These substances have not been isolated, and very little is known of their chemical or physical properties as yet. Their presence has been determined solely by experiments with animals.

It is not known how much is necessary in the diet nor how much each food contains, but it is known that a complete lack of these substances in the diet leads to actual disease, and a relative lack is responsible for ill health and a lack of growth in the young.

Technically speaking, these vitamines are known as (1) fat soluble A; (2) water soluble B; and (3) anti-scorbutic C.

FAT SOLUBLE A.

This vitamine is so called because it is soluble in fat.

Source. — It is found dissolved in animal fats, such as cream, butter, beef fat, egg yolk, and fish oils, such as cod liver oil and whale oil, but does not occur to any extent in vegetable oils. It is also found in glandular organs, such as liver, kidneys, pancreas (sweet breads) and in the leaves or sprouting parts of vegetables, such as asparagus, Brussels sprouts, cabbage, celery and lettuce.

Function. — Fat soluble A is necessary to promote growth, prevent rickets in the young, and xerophthalmia, a severe disease of the external coating of the eye, which, if allowed to continue, may result in blindness.

For many years the value of a generous dietary in combating diseases such as tuberculosis has been universally recognized, and it is a curious fact that many of the foodstuffs which enter so largely into the composition of these dietaries are particularly rich in one or the other of the accessory substances. Such foods are eggs, milk, cream, butter and cod liver oil, which are all sources of fat soluble A, and form the basis of treatment of diseases of malnutrition and tuberculosis.

Some one of the foods containing fat soluble A, preferably two of them, should be kept in the diet daily if children are to grow, be strong and keep healthy; if adults are to keep up their strength and resistance; and if tissues wasted by disease are to regain strength.

Pregnant and nursing mothers should have as liberal a supply of the fat soluble factor as is possible.

Rickets is not confined to artificially fed children. Breast-fed children depend for an adequate supply of this factor on the milk, which, in turn, depends upon the diet of the mother. If the diet of the mother is deficient in fat soluble A, the nursling is not only being deprived of the growth-promoting substances at a period when they are of vital importance, but is having also a diet which may result in rickets.

WATER SOLUBLE B.

The second vitamine may be dissolved in water, and is often called water soluble B.

Source. — It is found to some extent in all natural foodstuffs, and for this reason there is generally little danger of a deficiency of it in the diet. It is not found in white flour, white rice, sugars, starch or fats.

Principal Sources. — The principal sources of water soluble B are in the seeds of plants, the eggs of animals and highly cellular organs, such as liver and brain. Flesh contains comparatively little of the water soluble B; the yeast cells are a rich source of this factor.

In peas and beans the water soluble vitamine is distributed throughout the seed, but with the cereals it is concentrated in the germ and outer layer of seed, which is taken off in the milling in the form of bran.

Because this vitamine is soluble in water it may be lost if water in which vegetables are cooked is thrown away. This water should be used as often as possible in soups and gravies. Whenever possible it is well to bake or steam the vegetables or cook them in a small amount of water and serve the water with them.

Function. — Water soluble B is necessary in the diet to promote growth in the young and prevent antineuritic conditions and the occurrence of the disease called beriberi.

ANTI-SCORBUTIC C.

The third vitamine, because it has been found to cure or prevent scurvy, has been called anti-scorbutic C. It is also necessary for growth and is soluble in water.

Sources. — Fresh vegetables and fruits are the best sources, the richest being cabbages, turnips, lettuce, water cress, lemons, oranges, raspberries and tomatoes. Potatoes, carrots and lime juice are inferior, but potatoes are probably responsible for preventing scurvy in the northern countries where the other vegetables are rare, because they are eaten in large quantities.

All dried vegetables are deficient in anti-scorbutic properties. All canned vegetables and canned meats are also deficient in anti-scorbutic C. In canned fruits and tomatoes, because of their acidity, the stability of the vitamine is increased and its destruction prevented to some extent.

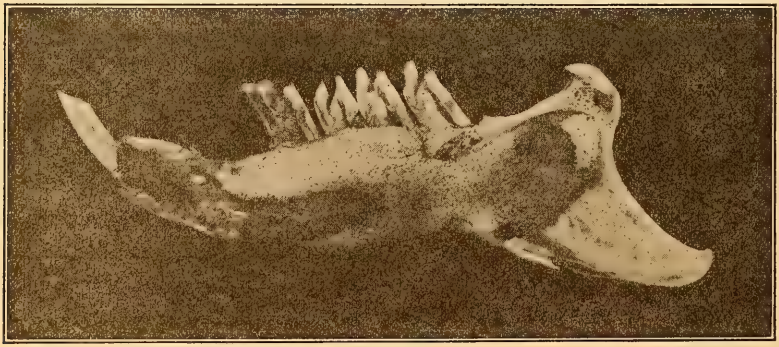
Where fresh fruits or vegetables are scarce or absent, anti-scorbutic food can be prepared by moistening any available seeds, such as wheat, barley, rye, peas, beans and lentils, and allowing them to sprout. This sprouted material possesses an anti-scorbutic value equal to that of many fresh vegetables, and should be cooked in the ordinary way for as short a time as possible.

Infantile Scurvy. — All artificially nourished infants should receive an extra anti-scorbutic. Cow's milk even when raw is not rich in anti-scorbutic vitamine, and when heated, dried or preserved the amount contained is still further reduced.

The best anti-scorbutic material to use is orange juice, raw turnip (slice and grate turnip and press through sieve), tomato juice and grape juice.

Pregnant or Nursing Mothers. — If babies are breast fed it is important that the mothers should receive an adequate supply of the anti-scorbutic food in their diet in the form of fresh fruits and vegetables.

Value of Vitamines in making Other Foods more Useful. — Dr. Percy R. Howe, in his research work at Forsyth Dental Infirmary, has found that the vitamines not only play an important part in promoting growth, maintaining health, and in the formation of bone and teeth, but has found also that the anti-scorbutic vitamine is especially important in helping the body to utilize the minerals, especially calcium. Dr. Howe feels that even if enough calcium is supplied, it cannot be well utilized unless there is sufficient of the anti-scorbutic vitamine in the form of fresh fruits and fresh vegetables.



New bone formation brought about by proper feeding, after a period of vitamine deficiency diet. (Courtesy of Dr. Percy R. Howe, Forsyth Dental Infirmary, Boston.)

If Dr. Howe has found this to be true in his work with diet in its relation to the bones and teeth, is it not also important to consider this fact in the treatment of tuberculosis, and to supply not only the calcium in the form of milk and eggs, but also to supply the anti-scorbutic vitamine in the form of fresh fruits and vegetables, in order that the calcium may be utilized by the body?

Effect of Heat on the Vitamines.

At present there is very little definite knowledge as to the effect of heat on the vitamines. It is generally believed, however, that when fresh foodstuffs containing vitamines are subjected to heat, drying or other methods of preservation their vitamine value is lessened or destroyed. It is, therefore, wise to guard against this by keeping in the diet daily plenty of fresh fruits and fresh vegetables, and, when cooking foods rich in vitamines, to cook them at as low a temperature and as short a time as possible.

IMPORTANCE OF VITAMINES IN THE DIET.

The importance of these vitamines cannot be overestimated. A failure to include them in large amounts not only results in failure of normal growth and development and a lessened resistance to disease in childhood, but ill health and a lessened resistance to disease in adults, and may result in such specific diseases as rickets, scurvy, xerophthalmia and beriberi. A lack of vitamines in the diet has a very unsatisfactory effect upon the nervous system, and it has been found by experiments that scientists have made with animals, that a diet otherwise adequate but deficient in the vitamines brings about abnormal development of the teeth and bones, such as delayed eruption of the permanent teeth, delayed loss of the deciduous teeth, irregularity in position, and the partial absence of, or very defective, enamel, decalcification of the teeth, as well as elongation and loosening of the teeth.

It is necessary, then, to include in the dietary daily foods containing these dietary essentials, and this is especially true in regard to the diet during growth.

The ordinary mixed diet is not likely to be lacking in water soluble B, since it is present in all natural foods, but in order to provide for fat soluble A we must include daily whole milk, milk fats (butter and cream), egg yolk and leaf vegetables, and in order to provide for antiscorbutic C we must include fresh vegetables and fruits.

It is also important to note that the deficiency diseases develop very slowly, and long before symptoms of the acute diseases can be diagnosed there will be general departure from good health, which lowers the well-being and efficiency of the individual.

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THE COMMONHEALTH.

Bimonthly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

Cancer. — In our eagerness to control communicable disease, to abate the nuisances which stand in the way of efficient municipal housekeeping and to protect the health of the child, we health officers are apt to overlook the need for popular enlightenment on the subject of cancer. Our knowledge on this subject we must confess to be altogether too meager, but there are some things about this disease which we do know, and there are certain preventive and remedial procedures directed against cancer which are well established in medical practice. Information as to these ought to be freely available.

In order to help to bring the subject of cancer prominently before the public once more, the September-October number of The Commonhealth will be devoted to cancer. In the meantime it is not out of place to call again to the attention of the physicians and hospitals of Massachusetts the fact that the State Department of Public Health offers free diagnostic service for the detection of cancer through the examination of pathological material obtained at the time of operation. Containers for specimens may be obtained by application to the Department of Public Health, either at the State House or at the offices of the State District Health Officers.

Mouth Hygiene Charts. — The problem of reaching the smaller communities with pictorial material is often a difficult one. If the community meeting place has electricity it is an easy matter, since the Department of Public Health has stereopticon slides to loan, and can, on occasion, furnish a lantern as well. Often, however, electricity is not available, or the meeting is to be held in the afternoon in a room which can be darkened only imperfectly or not at all.

To meet this situation the Department has had prepared a set of forty-eight large photographs with self-explanatory captions. These photographs deal with the subject of mouth hygiene. They are mounted on a tripod and can be used in schoolrooms or small halls to illustrate a talk on mouth hygiene. Application for the loan of these photographs may be made at any time to the Division of Hygiene, Massachusetts Department of Public Health, State House, Boston. There is no charge for the use of this or any other material from the Department, but it cannot be loaned for use outside the State.

Conferences on Public Health. — The Massachusetts Department of Public Health has in preparation a prospectus of a series of round-table conferences on public health which will be offered in the early autumn to all persons who are interested in the rapidly widening field of activities which go to make up the modern public health movement. The following is a tentative outline of the conferences, each of which will consist of a half hour's talk by the leader, followed by a half hour of discussion, limited to five minutes for each participant: —

Oct. 5, 1921: —
  The Modern Public Health Movement. By Dr. E. R. Kelley, Commissioner of Public Health.
  The Massachusetts Program. By Dr. George T. O'Donnell, State District Health Officer.
Oct. 19, 1921: —
  Public Health Nursing. By Anne H. Strong, R.N., Director, Simmons College School of Public Health Nursing.
  The Place of Social Service in Public Health. By Miss Ida Cannon, Director of Social Service, Massachusetts General Hospital.
Oct. 26, 1921: —
  The Control of Communicable Disease. By Dr. Bernard W. Carey, Director, Division of Communicable Diseases, Massachusetts Department of Public Health.
  Industrial Medicine. By Dr. Wade Wright, Industrial Clinic, Massachusetts General Hospital.
Nov. 2, 1921: —
  The Tuberculosis Program. By Dr. Sumner Remick, Director, Division of Tuberculosis, Massachusetts Department of Public Health.
  The Venereal Disease Program. By a representative of the United States Public Health Service.
Nov. 9, 1921: —
  Child Hygiene. By Dr. Merrill Champion, Director, Division of Hygiene, Massachusetts Department of Public Health.
  Mental Hygiene. By Dr. C. Macfie Campbell, Director, Psychopathic Hospital.

Frequently those individuals who are actively concerned in carrying on various public health activities in their own communities are unaware of the increasing opportunities for extension of work, or of the limitations as fixed by statute. A broad appreciation of the fundamental principles upon which a sound public health program is based is essential to real progress toward better health in our communities.

On the other hand, it is the earnest desire on the part of members of the staff of the Department of Public Health, who will conduct these conferences, to become more familiar with the resources available throughout the State.

If you would like to have a prospectus of this course mailed to you when ready, please send your name and address to the Editor of The Commonhealth.

ANNOUNCEMENT.

The trustees of the Boston City Hospital wish it known to the officers of health in particular, and to the medical profession of the State of Massachusetts, that they have authorized the organization of a service for the diagnosis and treatment of cases of tropical diseases, including certain parasitic and infectious diseases rarely seen here and more common in foreign countries, and that this service is now ready to receive patients.

Dr. Richard P. Strong, consultant in tropical diseases to the hospital, and professor of tropical medicine at the Harvard Medical School, is keenly interested in the undertaking, and is prepared to assist with advice.

The work of the service for tropical disease has been undertaken by Dr. George C. Shattuck, who will also assume the duties of assistant professor of tropical medicine at the Harvard Medical School September 1. It would be appreciated if physicians and health officers would avail themselves of this service and refer suitable cases to the same.

Arrangements for admission of patients should be made in advance with Dr. John J. Dowling, superintendent of the hospital. Further information regarding the service for tropical disease can be obtained by writing to Dr. Shattuck at the hospital.

THOMAS A. FORSYTH,
Secretary of the Trustees of the Boston City Hospital.

AMERICAN PUBLIC HEALTH ASSOCIATION SEMICENTENNIAL CELEBRATION.

The American Public Health Association celebrates this year in New York City the semicentennial anniversary of its organization. By a happy coincidence, the founder, Dr. Stephen Smith, who was also the first president of the association, is now in his ninety-ninth year, and his approaching centennial will be celebrated with the semicentennial of the American Public Health Association at New York City, November 8 to 18. A recent photograph of Dr. Smith appears in this issue of "The Commonhealth."

The association is now actively at work, through its various committees, making ready for the event. Among the leading features of the celebration will be a Health Institute, offered without expense to visitors during the week preceding the annual meeting.

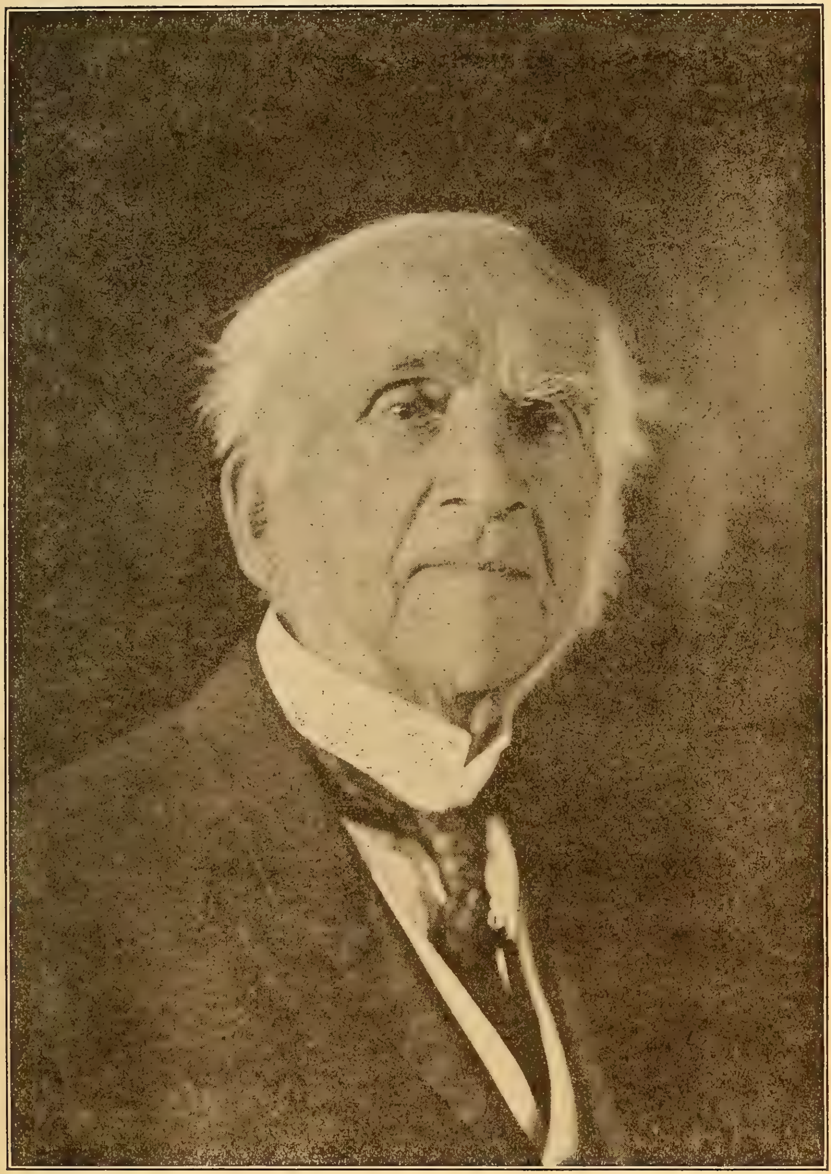
As stated in the association's announcement, "the fundamental purpose is to enable the visitor to inform himself upon those phases of health administration which might be applicable in his own community." The institute will consist of a series of demonstrations of both the official and the voluntary health activities of New York City, interspersed by a sufficient number of lectures to supplement the demonstrations.

Here may be seen in action the methods of procedure which have, according to a recent study made by the Rockefeller Foundation, reduced the death rate among infants under one year of age from 273.6 per thousand in 1885 to 81.6 in 1919.

Unless your community can show a like result, would it not be worth while to send your health officer to see how New York City has been able to accomplish such satisfactory results in child saving?

The program of the semicentennial meetings will be as follows: Nov. 8 to 12, 1921, Health Institute; Nov. 14 to 18, 1921, Fiftieth Annual Meeting. Headquarters will be at Hotel Astor, New York City.

Blanks for registration and a tentative program of the institute demonstrations may be found in the September issue of the "American Journal of Public Health," and further particulars may be had by addressing the American Public Health Association, 370 Seventh Avenue, New York City, New York. It is requested that registration be made early and that your desires be expressed as to the sort of demonstrations to be made.



Dr. Stephen Smith

Founder and First President of the American Public Health Association.

RÉSUMÉ OF COMMUNICABLE DISEASES.

March, 1921.

General Prevalence.

There were 10,600 cases of communicable diseases reported during the month as compared with 8,982 for the preceding month.

Anterior Poliomyelitis. — Seven cases are recorded for the month. In January and February the number was 10 for each month. Following the great 1916 epidemic of this disease, with which the smaller epidemic of 1920 coincided almost exactly in seasonal distribution, there was a sharper falling off of cases during the first three months of the following year (1917). Twenty-four cases were reported in the first three months of 1917 as against 27 for the corresponding months of 1921, yet there had been about three times as many cases during the epidemic of 1916 as during that of 1920. One suggested explanation is that this incidence may foreshadow a moderately high incidence for the summer and fall of 1921. Another explanation is that cases of encephalitis lethargica may have been mistaken for poliomyelitis.

Chicken Pox. — There were 1,490 reported cases, which is practically the same number as that reported in January and February. No instances of mistaken diagnoses between this disease and smallpox occurred. Now that smallpox prevails in Massachusetts about three foci, viz., Gloucester, Salem and Boston, great care should be taken not to presume too much on the known prevalence of chicken pox in making a diagnosis. Smallpox must be especially considered.

Diphtheria. — A gradual decrease in this disease is evident with the coming of warmer weather. Still the number of cases reported was large, being 755. This means about 60 deaths, which are now considered preventable. The District Health Officers are assisting communities, schools and institutions in the initiation of permanent immunization against diphtheria by means of the toxin-antitoxin following the Schick test to determine immunity of the individuals. Boards of health, schools or institutions desiring suggestions, assistance or demonstrations in this work should at once make application to their State District Health Officer in order to get an appointment that will be most convenient for them.

Epidemic Cerebrospinal Meningitis. — The incidence has not been unusual with but 14 cases reported. Twenty or 25 cases per month is not extraordinary at this season.

Influenza. — The following incidence has been noted since January 1: January, 158 cases; February, 134 cases, and March, 125 cases.

Measles. — This disease has gradually increased since last September when there were but 207 cases. This month there were 2,836 cases. The Department has recently pointed out the great mortality that we still have from measles, and has called particular attention to the high fatality rate in very young children and the necessity for educating the people about its dangers. Stricter methods should be taken against it, and young children especially protected against exposure. The dangers of complications should dictate better medical and nursing care than is usually thought necessary.

Lobar Pneumonia. — Since this disease was made reportable in 1917 its reporting by physicians has gradually increased, but is yet far from complete. For instance, the apparent fatality rate from reported cases and deaths is 50 per cent, which indicates that there probably are more unreported than reported cases of this disease. The number for March was 582.

Scarlet Fever.—The incidence of this disease has, like that of measles and whooping cough, gradually increased since January 1. There were 1,258 cases compared with 1,192 for February. Fortunately the disease has not, as a whole, been very virulent. But, as in the case of smallpox, the virulence of particular epidemics does not always hold true for individual cases, and a child may gain a very virulent infection from a very mild case of the disease. For this reason we should not cease to fear scarlet fever.

Pulmonary Tuberculosis.—The prevalence of pulmonary tuberculosis remains consistently almost stationary, with a gradual decrease that amounts to a considerable number when the tabulations for the year are made. There were 659 cases reported.

Typhoid Fever. — The cumulative total of cases for 1921 is 134 to March 31. Last year this total was but 117. Fifty-two cases were reported against 33 last March. If Massachusetts is to maintain its low mortality rate for typhoid fever, and better it, as it has done in the past, it must begin early its intensive work against the disease.

Whooping cough has increased from 713 reported cases last month to 894 for March.

Encephalitis lethargica became reportable March 1, and during the month 43 cases were reported. It will be interesting to see whether this disease is going to fall off with the respiratory diseases, or increase in incidence with the coming of summer along with the acute intestinal diseases.

Rare Diseases.

Actinomycosis was reported from Boston, 1.

Anterior poliomyelitis was reported from Boston, 2; Chicopee, 1; Everett, 1; Newton, 1; Weymouth, 1; Winchester, 1; total, 7.

Dog bite requiring antirabic treatment was reported from Bridgewater, 1; Fall River, 2; Lowell, 4; Weymouth, 1; Winthrop, 1; Wrentham, 2; total, 11.

Dysentery was reported from Boston, 1; Concord, 1; total, 2.

Encephalitis lethargica was reported from Adams, 1; Boston, 17; Braintree, 1; Brookline, 1; Cambridge, 1; Douglas, 1; Everett, 2; Fall River, 1; Holyoke, 3; Lowell, 1; Lynn, 2; Melrose, 1; Newbury, 1; Newburyport, 1; Newton, 1; North Adams, 1; Quincy, 1; Springfield, 2; Wakefield, 1; Webster, 1; Winchendon, 1; Worcester, 1; total, 43.

Epidemic cerebrospinal meningitis was reported from Boston, 4; Everett, 1; Fairhaven, 1; Holbrook, 1; Lynn, 1; New Bedford, 2; Newton, 1; Plymouth, 1; Quincy, 1; Springfield, 1; total, 14.

Malaria was reported from Boston, 1; Chelsea, 2; Taunton, 1; total, 4.

Pellagra was reported from Boston, 1; Northampton, 1; total, 2.

Septic sore throat was reported from Boston, 6; Brookline, 1; Cambridge, 1; Methuen, 1; Westford, 1; total, 10.

Smallpox was reported from Boston, 1; Gloucester, 2; Methuen, 2; Salem, 7; total, 12.

Trachoma was reported from Boston, 5; Holliston, 1; Somerville, 1; Worcester, 1; total, 8.

Distribution.

All Communicable Diseases.

	March, 1921.	March, 1920.
Total cases (all causes),	10,600	11,773
Case rate per 100,000 population,	271.6	304.3

Certain Communicable Diseases.

	March, 1921.	March, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Diphtheria: —			Attleboro, (3) 12 New Bedford, (5) 20 Boston, (201) 257 Brockton, (11) 18 Lowell, (25) 43 Medford, (3) 16
Total cases,	755	559	
Case rate per 100,000 population,	19.3	14.4	
Measles: —			Barnstable, (0) 85 Fall River, (51) 76 Cambridge, (69) 253 Framingham, (10) 116 Marlborough, (1) 36 Wellesley, (3) 48 Salem, (14) 28 Saugus, (0) 70 Lowell, (19) 175 Fitchburg, (13) 185 Leominster, (0) 95 Winchendon, (0) 58 Worcester, (3) 281 Northampton, (0) 21 Great Barrington, (0) 25 North Adams, (1) 65 Pittsfield, (1) 38
Total cases,	2,836	3,010	
Case rate per 100,000 population,	72.7	77.8	
Scarlet fever: —			New Bedford, (12) 50 Plymouth, (0) 36 Taunton, (3) 15 Boston, (217) 305 Natick, (3) 13 Everett, (11) 23 Malden, (12) 30 Lawrence, (10) 34 Medford, (4) 23 Springfield, (24) 38 Greenfield, (5) 38
Total cases,	1,258	1,223	
Case rate per 100,000 population,	32.2	31.6	
Typhoid fever: —			
Total cases,	52	33	
Case rate per 100,000 population,	1.3	.8	
Whooping cough: —			Provincetown, (0) 21 Somerville, (5) 15
Total cases,	894	1,142	
Case rate per 100,000 population,	22.9	29.5	
Tuberculosis, pulmonary: —			
Total cases,	659	555	
Case rate per 100,000 population,	16.9	14.3	
Tuberculosis, other forms: —			
Total cases,	107	86	
Case rate per 100,000 population,	2.7	2.2	

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

April, 1921.

General Prevalence.

There were 9,735 cases of communicable diseases reported for April as compared with 10,519 for March. However, there were reported less cases in both January and February. The excess for April over January and February is due almost entirely to the regular increase in measles that has been occurring each month since the beginning of the present epidemic of that disease last November.

There were decreases in the reported incidence of all the more important communicable diseases except measles, which numbered 3,293 cases compared with 2,836 for March.

Diphtheria, which in January was more prevalent than for any month of 1920, has steadily decreased each month since then. In January there had been 965 reported cases. The total for April was 676.

German measles exceeded 100 cases both in April and in March. This has not happened since July, 1918. There were 101 cases reported in April and 107 in March.

Gonorrhea and *syphilis* were reported in about the usual numbers, — 468 for the former and 216 for the latter. Roughly speaking, there are now being reported monthly about 500 cases of gonorrhea and 250 of syphilis.

Measles, as has been said, reached the highest number yet reported during the present epidemic.

Lobar Pneumonia. — There were 565 cases of lobar pneumonia reported. Our death returns on this disease show that probably not more than one-third or one-quarter of all the cases are reported.

Scarlet fever, which, with 1,258 cases in March, had been gradually increasing since last August, began to decrease again, and but 1,016 cases were reported.

Whooping cough still remains high, though there was a decrease from 894 for March to 707 cases for April.

Typhoid Fever. — The number of reported cases of typhoid fever to May 1, 1921, has exceeded that reported for the first four months of last year by 16 cases. There were 44 cases in April.

Rare Diseases.

Anthrax was reported from Danvers, 1.

Anterior poliomyelitis was reported from Lawrence, 1; Sutton, 1; Worcester, 1; total, 3.

Dog bite requiring antirabic treatment was reported from Fall River, 5; Lowell, 3; New Bedford, 1; Winthrop, 2; total, 11.

Dysentery was reported from Cambridge, 1.

Encephalitis lethargica was reported from Boston, 4; Brookline, 1; Dudley, 1; Easthampton, 1; Fitchburg, 1; Lynn, 1; Mendon, 1; Norwood, 1; Wakefield, 1; Weymouth, 1; Worcester, 1; total, 14.

Epidemic cerebrospinal meningitis was reported from Blackstone, 1; Boston, 5; East Bridgewater, 1; Fall River, 1; Haverhill, 1; Holliston, 1; Milford, 1; New Bedford, 2; Salem, 1; Springfield, 1; Tewksbury, 1; West Bridgewater, 1; Worcester, 1; total, 18.

Leprosy was reported from Boston, 1.

Malaria was reported from Boston, 3; Fall River, 2; total, 5.

Pellagra was reported from Brockton, 1; Danvers, 1; Waltham, 1; total, 3.

Septic sore throat was reported from Boston, 4; Bridgewater, 1; Brockton, 1; Fitchburg, 1; Malden, 1; Mansfield, 1; Newburyport, 1; Worcester, 1; total, 11.

Smallpox was reported from Boston, 4; Malden, 3; total, 7.

Tetanus was reported from Boston, 1; Dennis, 1; Clinton, 1; Lynn, 1; Salem, 1; total, 5.

Trachoma was reported from Boston, 7; Braintree, 1; Brockton, 1; Lawrence, 1; Plymouth, 1; Somerville, 1; Watertown, 1; Worcester, 2; total, 15.

Trichinosis was reported from Boston, 1; Winchester, 1; total, 2.

Distribution.

All Communicable Diseases.

	April, 1921.	April, 1920.
Total cases (all causes), ...	9,735	10,571
Case rate per 100,000 population, ...	249.5	273.2

Certain Prevalent Diseases.

	April, 1921.	April, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria: — Total cases, Case rate per 100,000 population,	 676 17.3	 471 12.2	New Bedford, Danvers, Lynn,	(6) (1) (13)	16 9 31
Measles: — Total cases, Case rate per 100,000 population,	 3,293 84.4	 4,149 107.2	Hingham, Holliston, Quincy, Chelsea, Saugus, Stoneham, Lexington, Pepperell, Fitchburg, Gardner, Leominster, Lunenburg, Southbridge, Warren, Winchester, Worcester, Northampton, West Springfield, Great Barrington,	(1) (0) (7) (18) (0) (3) (4) (0) (21) (1) (3) (2) (1) (0) (1) (19) (8) (0) (1)	36 22 125 34 41 67 24 88 308 172 187 39 75 19 59 287 37 25 114
Scarlet fever: — Total cases, Case rate per 100,000 population,	 1,016 26.0	 1,358 35.1	Plymouth, Taunton, Cambridge, Weymouth, Andover, Lawrence, Medford, Worcester, Great Barrington, Williamstown,	(1) (4) (20) (1) (1) (12) (8) (18) (0) (0)	25 17 42 11 15 38 22 48 26 61
Typhoid fever: — Total cases, Case rate per 100,000 population,	 44 1.1	 44 1.1			
Whooping cough: — Total cases, Case rate per 100,000 population,	 707 18.1	 1,089 28.1	Middleborough, Bridgewater, Brookline, Cambridge, Newton, Haverhill,	(0) (0) (12) (30) (4) (6)	17 15 76 94 36 30
Tuberculosis, pulmonary: — Total cases, Case rate per 100,000 population,	 665 17.0	 697 18.0			
Tuberculosis, other forms: — Total cases, Case rate per 100,000 population,	 77 2.0	 87 2.2			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

MAY, 1921.

General Prevalence.

There were 7,392 cases of communicable disease reported for May as compared with 9,650 for April. This is the smallest number reported so far this year. There were decreases in the reported incidence of all the more important communicable diseases except typhoid, which numbered 168 cases as compared with 44 for the previous month.

Diphtheria, which was quite prevalent during the early part of the year, has steadily decreased each month, showing a lessened incidence; total for May, 645.

German measles exceeded the reports for any month this year; total for May, 128, as compared with 101 for April.

Gonorrhea and *syphilis* were reported in about the usual numbers, — 449 for the former, 217 for the latter.

Measles, although still prevalent, has shown a marked decrease; total for May, 2,449, as compared with 3,293 reported during April.

Lobar Pneumonia. — There were 374 cases reported, the smallest number since November, 1920.

Scarlet Fever. — There were 649 cases of scarlet fever reported for this month. This is also a marked decrease, as 1,016 cases were reported during April.

Whooping cough also shows a decrease; total for May, 487, as compared with 707 for April.

Typhoid fever, which totaled 44 for April, now reaches the high mark of 168. This is due to its reaching epidemic proportions in a neighboring city.

Rare Diseases.

Actinomycosis was reported from Cambridge, 1.

Anterior poliomyelitis was reported from Boston, 1; Cambridge, 1; Danvers, 1; North Andover, 1; Southbridge, 1; Watertown, 1; total, 6.

Dog bite requiring antirabic treatment was reported from Boston, 2; Brookline, 1; Granby, 1; Lawrence, 1; Lowell, 2; Webster, 1; Winthrop, 1; total, 9.

Encephalitis lethargica was reported from Boston, 3; Ludlow, 1; Lynn, 1; Milton, 1; Waltham, 1; total, 7.

Epidemic cerebrospinal meningitis was reported from Boston, 6; Boylston, 1; Brockton, 1; Fall River, 1; Lowell, 1; Marlborough, 1; Northampton, 1; Revere, 1; Worcester, 1; total, 14.

Septic sore throat was reported from Boston, 2; Cambridge, 1; Chicopee, 1; Somerset, 1; Springfield, 1; Watertown, 2; total, 8.

Tetanus was reported from Boston, 2.

Trachoma was reported from Boston, 5; Chelsea, 1; Fitchburg, 2; Lynn, 2; Wakefield, 1; total, 11.

Trichinosis was reported from Winchester, 5.

Distribution.

All Communicable Diseases.

	May, 1921.	May, 1920.
Total cases (all causes),	7,392	12,280
Case rate per 100,000 population,	189.4	317.4

Certain Prevalent Diseases.

	May, 1921.	May, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Diphtheria: — Total cases, Case rate per 100,000 population,	 645 16.5	 478 12.4	Boston, (167) 253 Woburn, (2) 11 Springfield, (12) 24
Measles: — Total cases, Case rate per 100,000 population,	 2,449 62.8	 5,750 148.6	Dennis, (0) 19 Hingham, (1) 85 Quincy, (28) 244 Saugus, (0) 17 Stoneham, (1) 47 Wakefield, (1) 26 Concord, (2) 68 Gardner, (2) 46 Leominster, (3) 33 Lunenburg, (1) 37 Milford, (1) 26 Southbridge, (1) 46 Winchendon, (8) 83 Worcester, (29) 143 Northampton, (26) 44 Great Barrington, (1) 45 Williamstown, (0) 31
Scarlet fever: — Total cases, Case rate per 100,000 population,	 649 16.6	 1,216 31.4	Plymouth, (1) 23 Cambridge, (21) 41 Everett, (8) 23 Haverhill, (8) 20 Woburn, (1) 16 Great Barrington, (1) 10
Typhoid fever: — Total cases, Case rate per 100,000 population,	 168 4.3	 45 1.2	Waltham, (0) 121
Whooping cough: — Total cases, Case rate per 100,000 population,	 487 12.5	 1,168 30.2	Fall River, (16) 40 Middleborough, (1) 18 Avon, (0) 24 Brookline, (8) 50
Tuberculosis, pulmonary: — Total cases, Case rate per 100,000 population,	 566 14.5	 673 17.4	
Tuberculosis, other forms: — Total cases, Case rate per 100,000 population,	 74 1.9	 77 2.0	

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

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COMMUNICABLE DISEASES

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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METHODS WHICH MAY BE EMPLOYED IN THE CONTROL OF COMMUNICABLE DISEASES.

By Lyman A. Jones, M.D., State District Health Officer.

FOR the control and prevention of communicable diseases, no single method will succeed or even bring a moderate degree of success in the management of the group as a whole, for the procedure of necessity will be varied in different diseases according to the means by which they are transmitted and the special problems which are encountered.

The methods employed will also vary and undergo modification from time to time as additional or more accurate knowledge of the cause and manner of spread of individual diseases becomes available. For example, in former years great inconvenience was imposed upon persons and enormous losses were inflicted on commerce in ineffective efforts to control the spread of yellow fever. The subsequent discovery of the rôle of the mosquito in the spread of the disease changed the whole plan of campaign.

Methods will vary also as the degree of their efficiency is determined by the results of their application, as shown in the morbidity and especially in the death reports.

Until the time comes when it is practicable to immunize an entire population against a given disease as a matter of routine, — to inoculate every one specifically against typhoid fever, for example, — aside from general sanitary precautions and broad educational measures, but little can be done to prevent the spread of communicable diseases, unless the presence of cases of disease is known. A fire department, however active and well equipped, cannot carry on a fight against a given fire or attempt its control until information has been received of its existence and approximate location. The same thing is true of communicable diseases.

Hence the first measure looking toward the control of these diseases of necessity requires the prompt reporting of their presence, even of cases merely suspicious, to the health authorities, whether such reports are made by physicians or by the households concerned, for without such knowledge any specific effort at control will be impossible.

Since the circumstances and surroundings of cases of communicable disease vary greatly, even when but one disease is present, so that it is necessary frequently to modify the application of any method of control, it follows that the second measure looking toward the control of these diseases demands the careful investigation, preferably by an experienced worker, of each case as it is reported, including each suspicious case and the keeping of permanent records of the cases. Such investigation and records serve two purposes: (*a*) a study of such reports often furnishes information or a clew leading to the discovery of the source of the infection, making possible the prevention of further cases from the same source; and (*b*) such personal investigation makes possible an intelligent adaptation and modification of the general measure as applied to a particular case.

A further measure, of great importance, looking toward the ultimate control of communicable disease, is the education of the general public. This should include instruction as to the modes of transmission of disease and the means to be employed in combating such transmission, so that the public as a whole will recognize the necessity for and the reasonableness of the measures employed, and actively cooperate in carrying them out. It is to be regretted that sometimes professional men seem to be lacking in such knowledge, in so far as they withhold or delay the making of reports or fail in giving proper support to sound health practice.

This educational work cannot be accomplished in a day or a year. Rather is it a continuous campaign. It is to be carried out by careful and detailed directions in every case reported, taking pains to see that the household concerned fully understands why each direction is given, its necessity, and what it seeks to accomplish. Such work is best performed by a trained health officer or a trained public health nurse.

Appropriate advertising in the local newspapers from time to time is valuable, as given situations occur, so that the community may be adequately informed of conditions and precautions necessary to be observed.

Posters sometimes may be employed with advantage. Films, lantern slides and exhibits have their place in educational work.

Knowledge as to the transmission and prevention of disease may be imparted in the schools, including normal and training schools, a most promising possibility, for children often accept new ideas more readily than their elders, and carry information into many homes not otherwise easily accessible.

Health centers wherever established afford another avenue through which educational work may be carried out.

Knowledge available to-day, if consistently and generally carried out, would not merely control the spread of certain diseases, but would practically eliminate them from our midst.

Vaccination and revaccination, universally employed, would blot out smallpox; anti-typhoid inoculation similarly employed would banish typhoid fever; the employment of the Schick test and the use of the toxin-antitoxin mixture in those found to be susceptible to diphtheria would reduce the prevalence of this disease to negligible proportions; the prevention of the breeding of certain species of mosquitoes responsible for the spread of yellow fever and malaria would soon make these diseases unknown; the eradication of the rat and ground squirrel, from which, through the medium of the flea, plague is transmitted to man, would do away with this disease.

The practical eradication of these diseases is entirely possible whenever the people generally realize these facts, — whenever they show a willingness to furnish the means and to co-operate in carrying out the necessary measures.

Other measures employed to prevent the spread of communicable diseases may be best considered, perhaps, from the standpoint of the various agencies through which such diseases are transmitted.

Typhoid fever, cholera and dysentery may be transmitted through the use of polluted water. Such transmission is prevented by securing, preferably, a source of supply free from pollution. If such is not possible, the supply may be made safe by filtration. In sections where an adequately protected public supply is not available, pains should be taken to see that all wells and springs used are so located and protected that they will not be subject to pollution from privies, cesspools, drains, barns, stables, other outbuildings and surface wash. In any given instance where the domestic supply is under suspicion it may be used temporarily with safety if first boiled.

Milk is frequently the vehicle of infection in typhoid fever, scarlet fever, septic sore throat, and, less frequently, diphtheria. In these diseases the infection is introduced into the milk by the milkers or other handlers, or, in the case of typhoid fever, through the use of polluted water for the washing of cans and other containers. Milk from tuberculous cattle is also believed to be responsible for much of the tuberculous infection in children, especially of the non-pulmonary types. So far as tuberculosis is concerned the problem can be solved by using milk from tuberculosis-free cattle.

The pasteurization of milk by the holding process — heating milk to 145° F., and holding it at that temperature for thirty minutes — will at once eliminate the great share of infection thus transmitted.

In the absence of such protection immediate investigation should be made when two or more cases of a given disease are found to have a common source of supply.

Other foods, particularly those consumed raw, sometimes serve as the vehicle of infection, especially for typhoid fever. Such infection can practically be prevented by excluding all food handlers from their work upon the first indications of illness, until the nature of such illness is definitely determined. Such a measure cannot be generally carried out, however, until physicians and the public as a whole realize its importance to the point of acting first and investigating afterwards.

Insects are known to be the means through which certain diseases are transmitted. The relation of the flea to the transmission of plague, and of the mosquito to the spread of yellow fever and malaria, has been mentioned.

Flies transmit typhoid infection mechanically, owing to their promiscuous contact with human filth (discharges, soiled linen, used dishes, etc.) and food. From plain admixture of milk and dirt due to their travels they are held responsible for much of the diarrheal diseases of infants. "Swat the fly" efforts, particularly at the beginning of the season when they first appear, the screening of all foods, and more especially the protection of all manure pits, privy vaults and receptacles for garbage and waste, so that flies cannot find breeding places, will greatly lessen infection from this source.

A court in one of the New England States recently decided against the proprietor of a hotel who brought suit against a guest when he declined to keep the quarters engaged for the summer because of the excessive number of flies.

The body louse is the agent through which typhus fever is spread. Owing to the regulations of the Federal government, and to its constant watchfulness at ports of entry, the disease has not gained a foothold in this country. A proper degree of personal cleanliness and facilities for maintaining the same will prevent typhus.

"Carriers," those who harbor infection without themselves presenting evidence of illness, are responsible for certain diseases. Their part in the transmission of typhoid fever and diphtheria is especially well known. A typhoid carrier should be carefully instructed in personal hygiene, and should not be permitted to engage in the handling or preparation of milk or other foods. Diphtheria carriers should be isolated until negative cultures are secured from nose and throat.

Contact infection, infection transmitted directly from person to person, or indirectly by means of articles mutually used, — drinking cups, towels, etc., — where the time interval is brief and the secretions still fresh, is probably responsible for greater spread of infection than all other modes combined. The importance of contact in this connection has been emphasized by Dr. Chapin, superintendent of health of the city of Providence for many years. In a paper published some years ago Dr. Chapin so ably refers to the possibilities of contact infection that the following quotation is given: —

> If infection by contact is of such very great importance in the fecal-borne diseases, how much more important must it be in diseases in which the infective agent is found in the secretions of the nose and mouth, as is the case with diphtheria, scarlet fever, smallpox, mumps, measles, whooping cough, tuberculosis, influenza and cerebrospinal meningitis. Every one avoids feces and urine, but it is only the very few who have any objection to saliva. As I have elsewhere remarked: "Not only is the saliva made use of for a great variety of purposes, and numberless articles are for one reason or another placed in the mouth, but for no reason whatever, and all unconsciously, the fingers are with great frequency raised to the lips or to the nose. Who can doubt that if the salivary glands secreted indigo the fingers would not continually be stained a deep blue, and who can doubt that if the nasal and oral secretions contained the germs of disease, these germs would not be almost as constantly found upon the fingers? All successful commerce is reciprocal, and in this universal trade in human saliva the fingers not only bring foreign secretions to the mouth of their owner, but there, exchanging it for his own, distribute the latter to everything that the hand touches. This happens not once, but scores and hundreds of times during the day's round of the individual. The cook spreads his saliva on the muffins and rolls; the waitress infects the glasses and spoons; the moistened fingers of the peddler arrange his fruit; the thumb of the milkman is in his measure; the reader moistens the pages of his book; the conductor his transfer tickets; the 'lady' the fingers of her glove. Every one is busily engaged in this distribution of saliva, so that the end of each day finds this secretion freely distributed on the doors, window sills, furniture and playthings in the home; the straps of trolley cars; the rails and counter and desks of shops and public buildings; and, indeed, upon everything that the hands of man touch. What avails it if the pathogens do die quickly? A fresh supply is furnished each day. Besides the moistening of the fingers with saliva and the use of the common drinking cup, the mouth is put to numberless improper uses which may result in the spread of infection. It is used to hold pins, string, pencils, paper and money. The lips are used to moisten the pencil, to point the thread for the needle, to wet postage stamps and envelopes. Children 'swap' apples, cake and lollipops, while men exchange their pipes, and women, hatpins. Sometimes the mother is seen 'cleansing' the face of her child with her saliva-moistened handkerchief, and perhaps the visitor is shortly afterward invited to kiss the little one."

The moral is obvious, that if we universally learned to keep out of our mouths things which do not belong there, and took pains to thoroughly wash our hands with soap and water before handling or preparing food for ourselves or others, a vast amount of communicable disease would be abated immediately.

So far as individual cases of infectious disease are concerned, the patient should be isolated as necessary, or the premises and household quarantined as circumstances require. Where possible, it usually involves less hardship for the household to remove the patient to a hospital. Contacts should be kept under restraint or observation until the period of incubation is passed.

When cases occur in school children it is wiser to keep the school open, provided competent daily inspection by a physician or nurse can be arranged, since under these circumstances other cases will be discovered promptly before they have had opportunity to spread infection, which is not the case if the children are removed from daily observation. In a small town, with widely scattered population, where the school offers the only point of contact, the school may be closed with advantage.

Of recent years fumigation following the presence of infection has been falling gradually into disuse, dependence being placed rather upon a thorough cleansing with soap and water, with exposure to sunshine and air, using fresh whitewash, paint and paper as needed.

This discussion of measures for the control of communicable diseases is of necessity brief and incomplete, but it will serve to indicate in a general way methods which may be employed.

The Department of Public Health is ready at all times to supply literature upon the subject, or to advise with any who seek information in greater detail.

ROUTINE IMMUNIZATIONS FOR THE PREVENTION OF INSTITUTIONAL INFECTIONS.

By Charles W. Milliken, M.D., State District Health Officer.

ACTIVE immunization as a routine procedure will be confined to three diseases for the purpose of this paper. These diseases are smallpox, typhoid fever and the paratyphoids A and B, and diphtheria.

The institutions referred to are those in which there are many inmates more or less permanently housed, such as orphanages, children's homes, insane hospitals and correctional institutions. Summer camps for boys and girls might well be included in this list.

The old adage that "An ounce of prevention is worth a pound of cure" was never more fittingly applied than in the prevention of epidemics in institutions in which the inmates are all so closely associated. All of these institutions allow visitors at certain times, and there is no positive way except by active immunization that will prevent an outbreak should one of these visitors introduce one of these three diseases. Furthermore, we should "not wait until the horse is stolen before we lock the barn door," but apply the active immunization to all new inmates upon their admission to the institution.

The prevention of smallpox by vaccination has been recognized by the public as well as by the medical profession for many years, so that the Legislature of this State has made it compulsory for children entering the public schools to be vaccinated, and for all other people, whenever in the opinion of the board of health it is necessary. It is therefore of the utmost importance that people in institutions should be vaccinated against smallpox unless previously immunized by the disease itself. The question as to whether a person has been successfully vaccinated against smallpox should always be asked and determined of each entrant to an institution, and not neglected because it is expected that every one complies with the provisions of the statutes.

The length of time that immunity to smallpox through vaccination lasts is variable, sometimes lasting through life, yet it is advisable to repeat the process every seven to ten years.

In 1896 antityphoid vaccination was begun by Pfeiffer, Kolle and Wright, each working independently. Wright then introduced it into the English army, where from its remarkable results its use spread to those of other countries, including our own United States Army in 1899. Since then army typhoid fever, especially in the armies of the allied nations, has become a negligible quantity. While the inoculations of the antityphoid vaccine are not 100 per cent protection, yet the chance of infection is so minimized by their use that they are becoming a routine procedure in all large institutions. In Massachusetts the inoculations are usually made in three injections from seven to ten days apart. Because of this fact it is not applicable to camps for boys and girls where the inmates come in relays and are given the benefits of camp life for but a week or two at a time. Such persons should receive their inoculations before coming to camp. The length of time that this immunization lasts probably varies in different individuals, yet we can rely upon it for at least one year, and in many cases for three or four years.

While we know there is such a thing as a natural immunity to disease in some people, there are few diseases in which we can test that immunity. For smallpox we can test it by vaccination. If a person persistently refuses to develop a "take" after vaccination, it is fair to assume that that person is immune to smallpox.

In diphtheria we have a more accurate method, for we can test the amount of diphtheria antitoxin in the blood by the Schick test. Should a person have less than one-thirtieth unit of diphtheria antitoxin in 1 cubic centimeter of his blood, he will react to the Schick test and show a positive result. The reverse is also true: if a person does have one-thirtieth unit of diphtheria antitoxin in 1 cubic centimeter of his blood he will not react to the Schick test and can be declared immune to diphtheria. As this test is absolutely harmless it should be more generally used. To those who show a positive Schick test should be given the immunizing doses of diphtheria toxin-antitoxin. This is given in three injections at weekly intervals, as is the antityphoid vaccine. In two or three months a second Schick test should be made to determine if enough antitoxin has been developed in the system. If the Schick test should still prove positive, the toxin-antitoxin injections should be repeated until the Schick test becomes negative.

We may well ask, "Why is it, if these measures are being applied for the prevention of disease in the large institutions, that they cannot be used elsewhere, in the public schools, in lodges, granges, social organizations, and even in the home?" The answer is, "They can and they should."

The Massachusetts Department of Public Health makes the materials for these tests at its laboratories at Forest Hills for free distribution to the medical profession, as well as to institutions. Only by the use of prophylactics such as mentioned can we hope to reduce the incidence of the diseases discussed above and avoid some loss of life.

COMMUNICABLE DISEASES IN SCHOOLS.

By Harold E. Miner, M.D., State District Health Officer.

THE control of communicable diseases among school children is a problem which has engaged the attention of the best minds in public health work for many years. The seriousness of this problem can be fully appreciated only by those who have been actively engaged in this work, and who have closely followed the morbidity reports for the past few years. When one considers the anxiety, suffering, expense and economic waste which goes on year in and year out because of communicable disease in the schools of our country, it can readily be seen why so much study is devoted to, and so much effort is expended in, the finding of suitable measures of prevention; yet the problem still remains a large one.

The old efforts at control were based largely upon sanitation and environment. The health officer was appealed to in the presence of an outbreak. Schools were immediately closed and a general "clean up campaign" was inaugurated. Precautions of this type had their inception in the days when leaky gas pipes, damp cellars and filth in general were thought to be the cause. The child was tenderly nursed and treated by mother and physician. There was little thought of the danger of contact between sick child and healthy child, directly or through the discharges.

It is only comparatively recently that the teachings of modern public health have had an effective influence on efforts of control. Now we look for the source of infection, not at the patient's environment; not to books and playthings handled years ago by children who had the disease; not to garbage cans and rubbish piles; but to the patient himself and his discharges. Largely through our knowledge of bacteriology and the teachings of modern public health, medical inspection of school children was seriously taken up, and laws making mandatory its adoption were passed by our Legislatures.

Its chief object was the control of communicable diseases in the schools. True it is that many other phases of health work have been taken up, but these are the outgrowth of medical inspection.

Thus a great step forward was made, but only a step. The various cities and towns complied with the law, but because of an utter lack of understanding of its value, they failed to a great extent to reap the benefits. Physicians engaged for the work were insufficiently paid. A hasty inspection of the throat for enlarged tonsils, and a glance at the skin constituted the examination. Not much more could be expected for the amount paid the inspector.

As the main control for the prevention of the spread of communicable disease in schools depends upon competent medical inspection, physicians should be engaged who can give a large share of their time to the work. It is preferable that full-time men be engaged, especially in the cities. Even in rural districts where combinations of towns can be effected, physicians trained in public health work, giving all their time to the work unhampered by private practice, can obtain excellent results.

However, to ensure desirable results in the control of communicable disease, methods which are necessary for such control require considerable time on the part of the physicians in addition to the services of one or more full-time nurses. Co-operating with these officials, school superintendent, principals, teachers, janitors and parents play no small part in the army of prevention. The school physician should be at his office each morning before the opening of school to receive a report of all cases of communicable diseases for the twenty-four hours previous, and adequate records of the same should be made. His knowledge of the vicinity and of the age of the child will tell him, approximately, which school that child attends. Then he should proceed to the school, find the room and grade the child is in, and learn when the child was in school last. Having obtained these data he can judge the period of incubation and the danger of contact infection. The children should be examined individually. This can be quickly done, either in a corner of the room or in an adjacent office. A useful method is to have one row at a time come in. First, note is made of the general appearance of the child and whether it appears sick. It is surprising what a slight indisposition in children can readily be noticed by constant observation. The skin is carefully scrutinized for rash, and much can be learned from careful examination of the throat.

When evidence of scarlet fever is being sought, examination of the hands for recent peeling, and the ears for discharges, will be rewarded. Whenever the slightest redness is evident in the throat the temperature should be taken. In diphtheria suspicious throats should be cultured, and enlarged glands and irritant nasal discharges regarded with suspicion. Often it is necessary to culture the entire room or school, teachers and janitors included. Koplik spots and coryza are signposts in measles, and casual examination will reveal evidence of chickenpox, especially in the scalp. When whooping cough is suspected, exertion, such as running up and down the hall, will often bring out the spasmodic cough.

The examination having been made, the janitor is instructed to wash the tops of all desks in the room with soap and water, and as soon as convenient the room is aired and all sunlight available allowed to enter. The school is visited daily and similar examination is carried out until the period of incubation has passed. When a special disease is being sought, special signs can be looked for.

While it is realized that examinations of this sort take a good deal of time, the effort is not without its reward; for example, an incident that was firmly impressed on the writer's mind was the receipt of notice of a case of diphtheria in a large school. The grade which the child attended was sought, and the second child examined was found to have membranes on both tonsils. The child was immediately excluded and put under quarantine. Cultures were taken of the other children and two were found to be positive. These were isolated and no further cases developed. Another incident of interest came in a kindergarten where scarlet fever was appearing at intervals. A slight discharging ear and history obtained through the school nurse revealed clearly the source of infection.

The school nurse plays an important rôle in the control of communicable disease. Often in her regular visits to the school she locates many mild cases and advises exclusion from school on suspicion. In her visits to homes she often unearths cases among the preschool group and notifies the health inspector.

Upon the teacher, charged with many duties, we rely to a great extent to prevent the spread of disease. Her rôle includes the inspection of her pupils at the beginning of each session, when she often finds a pupil ill. Physician or nurse can be located and the child more thoroughly examined. Often she does not wait, but excludes temporarily. She also assigns to the school physician pupils absent three days or over for examination on return to school.

Sanitation of the school deserves some attention. Classrooms should be large and well lighted. Individual pencils, individual cups or drinking fountains, elimination of common towel, and provision of adequate toilet and washing facilities are factors which contribute in preventing the spread of infection.

Co-operation with, and education of, the parent is of vital necessity. When we consider that children attend school but five hours a day and spend the remaining time at home, we must realize how great the necessity is for educational health work. We must impress upon the minds of the parents that the infectious diseases of childhood are preventable; that they must not expose their children "to get it over with;" that communicable diseases do not come from air and environment, in general, but rather from the patient himself and his discharges.

We must impress upon parents their obligation to the community to observe proper quarantine regulations. This may be accomplished to a great extent through the teaching of hygiene and preventive medicine in the schools. To the physician and parent alike we must bring the realization of the value of immunization, and the newer methods at our disposal along preventive lines.

We have still much to learn in our efforts to eliminate communicable diseases. A greater knowledge of bacteriology, of serums and of the etiology of disease, together with great educational effort, is necessary. Great strides have been made and are being made toward that goal.

Adequate medical inspection has proved its worth, and as better systems are evolved and their worth appreciated by the people, the public will demand from their governing bodies well-paid public servants to safeguard their children.

THE PROBLEM OF COMMUNICABLE DISEASE CONTROL IN STRICTLY RURAL COMMUNITIES.

By Oscar A. Dudley, M.D., State District Health Officer.

In considering all the various activities of health agencies in rural communities, the origin of public health work often seems to have been forgotten, namely, the control of communicable disease.

Some particular agency or committee establishes a dental clinic, child-welfare clinic, or attempts a survey in any of the many fields of public health work, but in none of the programs is allowance made for the full protection of the health of all the children, and the only official health agency of their community, the local board of health, is often ignored.

The various health laws of Massachusetts, which apply equally to our many small communities as to larger towns and cities, sometimes bring real hardship to the smaller places. The financial burden is often felt by such a community, which in many cases cannot understand the need of these laws, when the roads are in very bad condition, and appropriations to make needful repairs have been reduced at the local town meeting.

It is a common complaint of the people of the rural community that the board of health is not active or is not interested in health work, and this statement is often made by voters who have the actual power through their vote to elect their own board of health.

The law specifically states that reportable diseases shall be reported by physicians immediately to the local board of health. In cases where no physician is employed, the householder is held responsible for giving notice of the existence of a reportable disease to the local board of health. The law also states that local boards of health shall report to the State Department of Public Health the presence of these diseases within twenty-four hours.

Even with these well-defined laws, it often happens that a householder, who is very active in committee work of some character pertaining to the public health, will actually keep from the board of health knowledge of an active case of measles or whooping cough existing in the home.

Members of boards of health, who in many instances are selectmen as well, have many duties thrust upon them with their election to office, and it is true they vary in the degree of their interest as far as health laws apply to their communities. However, close touch with rural communities rarely fails to reveal one or more members of such boards who are willing and anxious to work for the proper protection of health in these communities, even though usually they are not compensated for such work.

School examination as practiced in rural communities is not practical. The school physician is appointed by the school board, and is usually so poorly compensated that he cannot give the time necessary for the proper performance of the duties pertaining to his office.

The findings of the school physician as reported by him to the parent are not acted on in many instances. The same children are often found each year with extremely enlarged tonsils and adenoid growths which make breathing a burden. In the event of diphtheria, in this child, the chances of recovery would be excellent with proper treatment, if the advice of the school physician to have the necessary operation were followed, while without such operation such cases too often prove fatal.

Vaccination against smallpox, which has the world over been accepted more generally than any other one step of preventive medicine, is almost ignored in some rural districts, even though proper laws may have made it compulsory for school attendance.

To control these great errors in the rural communities it would seem wise that committees interested in public health work should carefully consider the candidates for election to the board of health, or board of selectmen if no board of health is elected by the town, with special reference to their interest in the public health.

Communities which desire any form of health work should first of all apply to their local board of health, which alone has the authority to execute health laws, and which should act as a clearing house for every form of health work.

Without the backing of the local board of health most of the health activities in a small community are usually not long in existence, whereas with the health board's support the movement for better health usually shows permanent results.

In towns where any public health nurse is located the appointment of such nurse as agent of the board of health is a great step towards the control of communicable disease. Now that the law requires towns to employ a school nurse, a wonderful opportunity is offered towns making the school nurse such an agent.

School physicians, when appointed, should be paid sufficient salary to enable them properly to execute their duties. The reports to the parents of the findings of the school physician should be followed up; this duty naturally devolves upon the school nurse, and constitutes one of the great arguments in favor of the need for her services.

The best-founded hopes of permanent improvement in control of communicable disease in our rural towns are founded upon some form of community health center, where several towns will pool the expense of a whole-time health officer who may also be school physician and supervisor of the school nurse.

SCARLET FEVER.

By George T. O'Donnell, M.D., State District Health Officer.

NO communicable disease, with the exception of diphtheria, is the occasion of so great concern to the public at large as the above-named affliction. To the trained medical mind it now takes precedence over diphtheria because of the fact that in the latter disease one is dealing with a known quantity, with known preventive measures and with a known remedial agent. All of these features are wanting in scarlatina; *i.e.*, the cause of the disease or the infecting agent is *not* known; there is *no* special preventive protection and *no* specific remedy.

When consideration is given to the acute poisonous nature of the disease and its tendency to produce complications, such as cervical (neck) abscesses, otitis media (middle ear disease) and nephritis (inflammation of the kidneys), and the wide range of possibilities in the modes of transmission from one person to others, the seriousness of the occurrence of scarlet fever at once becomes clearly apparent.

Definition. — Scarlet fever is an acute, specific, infectious disease, characterized by a sudden onset with a high fever, headache, vomiting and sore throat, followed on the second day by a generalized punctiform rash which later gives rise to desquamation, — a condition varying from a shedding of the skin in fine flakes resembling rice flour to a larger flake, large as is seen following sunburn, even at times showing complete casts of the fingers and hands.

History. — Painstaking efforts in research of the records available of the early Greek and Roman observers show evidences which to some degree point to a knowledge of the disease as far back as the fifth century, B.C., but it must be said that these same evidences are not considered to be clear or conclusive, and the world was not given convincing descriptions of the disease until the sixteenth century, A.D.

A number of epidemics of the disease were very accurately described in different parts of continental Europe during the next one hundred years, but the disease did not make its appearance in the United States until the beginning of the eighteenth century, at which time it was reported and described in Massachusetts.

Etiology. — It is true, as stated previously, that the bacteriological factor in the production of scarlet fever is not known. It is, nevertheless, a conviction with all public health investigators that a virus is responsible.

Modes of Transmission. — Very convincing accounts of the transference of the contagion through the medium of a third party, or by clothes or objects, are matters of record, and as great weight is given to this testimony by present-day writers on communicable diseases as has been given by investigators throughout the world in the past years. However, in the minds of public health authorities who enjoy constant experience in dealing with this subject there is a firm conviction that each case has its origin in the contact with an antecedent recognized or missed case.

The greatest importance should be given to this latter feature because of the fact that careful investigation so often brings to light evidence of contact with unreported instances of the disease.

The virus is without doubt transferred by the secretions of the nose and throat in the acutely ill patient, and by the discharges from the nose and ear, when such complications exist, in those who have been recently ill with the disease.

It is not now the belief of these same authorities that the desquamating skin carries the contagium of scarlet fever.

An instance of contact infection, which is worthy of much thought as serving to bring out strikingly the fact that the virus is harbored in the recesses of the nose and throat for long periods after apparent recovery, is that of the child who was discharged from a contagious hospital at the end of nine weeks as fully recovered from scarlatina, who, before discharge, was carefully examined by the physician at the hospital and the health officer of the city. After a residence at home of two weeks this child incurred a "common cold," with a watery discharge from the nose. Three other children who had not been in the home for several weeks, but who came into contact with the patient at this time, became ill with scarlet fever in four days.

It is plain that scarlatina has not the high degree of infectivity in the early stages that is characteristic of measles. Many of those who are removed from contact in the first few days escape the illness at the time, but when in contact with the discharge of the same patient who apparently had recovered, quickly incur the infection.

Though the disease may occur in infant and adult life, the period of greatest susceptibility appears to be the preschool age (two to five years). Though adult age groups show a lessened liability to infection, these same groups become involved in epidemics due to milk infection.

As to racial susceptibility, it is a fact that negroes possess a greater degree of immunity, and, too, show a lower mortality rate than Caucasians.

A great amount of importance has been attributed to contact in the schools, but much more stress is laid by the public health investigator on the home and neighborhood associations. Instances are frequent in which cases of scarlatina in the schools are not discovered until the process of desquamation has been completed, only to go back into the home and neighborhood and establish a fairly long trail of connected infections.

The ease with which milk becomes infected must always be borne in mind, and because of the fact every instance of suspicious illness on the premises of a milk handler should be brought to the attention of the health authorities and immediately and thoroughly investigated. When such infection does get into a milk supply the community suffers a most characteristic explosive type of epidemic; in other words, a great number of cases occur, in all age groups and with approximately the same onset.

Symptomatology. — The period of incubation varies from three to seven days. The onset is sudden. The early symptoms are indisposition, fever, headache and vomiting. In children vomiting is the omnipresent symptom. Adults most commonly complain of sore throat, and in infant life the disease may be and frequently is ushered in by convulsions.

In a very short period of time, a few hours usually, in a typical case the temperature rises to a point varying from 102° F. to 104° F., remaining in that region until such time as the eruption or characteristic rash has fully developed. As the rash fades, the temperature declines gradually. This process covers a period averaging from four to six days, as a rule, but variations in severity are often observed, ranging from the case which displays a very low temperature, with little or no disturbance of pulse and no prostration, to that case in which the temperature reaches 105° F. to 106° F., with a high and rapid pulse, 140 to 160 per minute, and with a correspondingly great degree of prostration.

The skin is hot and dry, the eyes are dull and the face flushed. The rash rarely appears on the face, but ordinarily appears first below this point and spreads downward over the body. The rash in scarlet fever is best described as dusky red in color, and is made up of countless raised, inflamed points in the skin. At a casual glance the skin appears as one continuous surface blush, but close examination reveals the fact that between the inflamed points is an area distinctly paler in tint, making each point stand out separately and giving a most characteristic appearance.

The tongue is usually heavily coated in the early stage of the disease. In the first forty-eight hours the tip of the tongue assumes an inflamed, reddish and granular appearance, and about the fourth day of the disease more or less of the surface is shed, and the whole tip of the tongue appears red and raw-looking, with enlarged papillæ. This appearance is what has been designated as the "strawberry tongue," always considered of such diagnostic importance in scarlet fever.

Diagnosis. — The typical case of scarlet fever presents little or no difficulty in diagnosis, but the atypical and mild case often creates the greatest confusion, and as a consequence many instances are disclosed where the diagnosis is not correctly made, or where there is much hesitancy in the placing of quarantine and isolation.

There is no one particular symptom by which the decision can be arrived at, but rather is it in the association of symptoms, history of contact and careful examination that a diagnosis can be made.

Too often, indeed, is a distinct though fleeting rash termed a "stomach rash," referring generally to some gastrointestinal disturbance, and too often, also, is the associated mild sore throat not noted. Many cases of this type desquamate (peel) rather generously at a period varying from the seventh to the tenth day of the disease.

The important points to consider in establishing a diagnosis are as follows: history of exposure (to antecedent case); suddenness of onset (indisposition, vomiting, fever, headache, convulsions in young children); sore throat; rapid rise in temperature and pulse; and appearance of the eruption; and sometimes, where acute stage is not noted, desquamation, especially at finger tips.

Prognosis is always dependent upon the severity of the attack and the presence or absence of complications, and the nature of the latter.

EXPERIENCE WITH THE SCHICK TEST IN A SMALL CITY.

By Francis Geo. Curtis, M.D., Chairman, Newton Board of Health.

The following account of the experience of the Newton Board of Health in doing the Schick test on the children in the public schools is given as an illustration of what can be done by a board of health, and also as a marked example of co-operation between the school department, the board of health and the physicians of a city. It should be understood that school inspection in Newton is under the control of the board of health, and the school physicians and nurses are in its employ, so that it has a standing in the schools quite apart from that given it by its supervision of communicable diseases.

Early in the year Dr. White, director of the State Antitoxin and Vaccine Laboratory, was invited to give a demonstration of the Schick test before the members of the Newton Medical Club, and showed the very simple technique to some forty members of the club and twenty pupil nurses of the Newton Hospital Training School.

So much interest was felt in the subject that Dr. White was asked to give a talk on immunity at some future date. This he did a month later, and at that meeting invited the members of the club to visit the laboratory at Forest Hills and familiarize themselves with the process of preparing and safeguarding the various biologic products which the Department of Public Health produces and distributes for use by physicians. About thirty physicians availed themselves of this opportunity.

The next step was to call together the school nurses and instruct them about the Schick test and the subsequent immunization of susceptibles with toxin-antitoxin, and direct them to explain to parents, when making their home visits, what the board of health proposed to do, and urge the parents to have their children tested. In addition, a circular was printed urging parents to have their children tested and immunized, if necessary. These circulars were given by the school nurses to every child in the grammar schools, with instructions to take them home to their parents.

A schedule was prepared, and sent to each school nurse, showing the date and hour that the testing would be done in each of her schools, and also on what dates she would act as assistant at other schools.

It was the duty of the nurse, at whose school the work was to be done, to arrange to have the children present at the appointed time, and to see that each child had a permit, signed by its parent or guardian, allowing it to take the test. This permit was indispensable, no child being tested who failed to present one.

The superintendent of schools was notified that the testing would be done in the schools with as little disturbance of the routine work as possible. He expressed his willingness to co-operate in any way possible, and directed the teachers to help. The teachers themselves became interested and asked for information from the nurses. They also talked with visiting mothers and advised them to talk with the board of health about it, — advice which many of them followed. The physicians of the city also, with few exceptions, were in favor of it.

The actual testing was done as follows: The staff consisted of two physicians and two nurses, the nurse of the school being responsible for the arrangements. A table was provided, and on it were placed the bottles containing the test and control solutions, the syringes (1 c.c. tuberculin syringe), forceps, a tray with a supply of sterilized needles (26 gauge) and an empty dish. A physician sat at each side of the table and the assistant nurse at one end. The nurse in charge was at another table on which was the solution for preparing the arms, with a roll of cotton. When all was ready each physician picked up a needle with his forceps, removed the wire, dropped it in the dish, fitted the needle on his syringe and filled his syringe. Meanwhile the children, with both forearms bared, presented themselves to the nurse in charge, who took the permit from each one and rubbed both forearms with the solution. They then passed on to the physician, who made the injections, using the right arm for the test and the left for the control, and directed them to pass on and return to the classroom. As soon as the injections were made the used needles were removed and dropped into the dish before the assistant, who replaced the wires. Fresh needles were fitted to the syringes and the next child injected.

Under this method each physician does both test and control, and it is necessary to have some means of identifying the syringes to prevent error. Another method is to have one man do the tests and the other the controls. This, of course, eliminates all possibility of error. No error has occurred under our method, which has worked satisfactorily and is rapid, as we have done 112 children in seventy minutes.

After the testing is finished the permits are sent to the office. These permits give the name of the child, its age, address, school and room. They are sorted and copied into a field book, the names being grouped by school and room. In addition, a card is made out for each child, giving its name, age, address, school and the date of the test. The signed permits are then put away for safekeeping.

On the fourth day after the test the observer with his field book goes to the school, and, passing from room to room, asks the teacher to call up all the children who were tested at the last visit. The children are identified, their arms read and the readings recorded. As a rule, this takes but a short time, and causes very little interruption of the school work. Absentees are checked and visited at their homes. The results are later recorded on the proper cards, which are then filed, positives and negatives being filed separately.

A circular letter is sent to the parents of each positive, stating that the child needs further treatment, and urging them to have this done by their own physicians. The nurses are furnished with duplicate lists, and visit the parents and urge them to have immunization done. In certain cases in which the nurse is satisfied, from her own knowledge of the circumstances of the family, that they cannot afford to employ a physician she is allowed to recommend the case to the board of health for free immunization.

When a patient is immunized the date is recorded on his card in order to complete the record.

There are certain details which we have worked out which are worth mentioning, not because we believe that they are better than others, but simply because we found that they helped us and so may help others. For instance, we found that the children made less fuss if the testing were done in the presence of others than if they were brought in alone. We also found that the one being tested was often quite interested in watching the formation of the wheal, — the "mosquito bite," as we soon learned to call it. Often a child who came up cringing and perhaps whimpering would "watch the mosquito bite grow," and go off laughing and triumphantly show his "mosquito bite" to those who were waiting their turn.

Again, as the testing was entirely voluntary, when we found a child who was really frightened and could not be quieted, we told him he need not have it done unless he wished, but could go back to the classroom. In many instances such a one would hang around and come up later to be tested.

We had few casualties; perhaps a dozen children became faint after they returned to the classroom, and perhaps half a dozen actually fainted, but these were children who had often fainted at other times.

There were, of course, many stories of children who had "sore arms," "sore throats" and were even confined to bed, as a result of the test injections, but none of these could be verified, and after it became known that the Department made it a rule to investigate all such stories, no further complaints were received.

We found that the afternoon was a better time for testing than the morning, as there was less disturbance of the school work, and, for some reason, we had a larger attendance; also that for convenience in reading, Monday and Friday were the best days for testing.

Since May 1, working two afternoons a week, and from one and one half to two hours an afternoon, we have tested 861 children in the grammar schools, their ages ranging from five to sixteen years, and of this number, 199, or 23.11 per cent, were negative.

In addition, 72 other persons, with ages ranging from two to forty years, have been tested, some by the Department and some by private physicians, and of these 17 were negative, giving a total of 933 persons tested, of whom 217, or 23.23 per cent, were negative.

Classifying these by age groups we have the following result: —

AGE (YEARS).	Cases.	NEGATIVE.	
		Number.	Per Cent.
Under 5,	13	–	–
5–10,	439	82	18.67
10–20,	427	118	27.63
Over 20,	54	17	31.48

Grouping the results by ages our figures are as follows: —

AGE (YEARS).	Cases.	NEGATIVE.	
		Number.	Per Cent.
Under 5,	13	–	–
5,	40	6	15.00
6,	55	7	12.72
7,	95	18	18.84
8,	130	28	21.53
9,	119	23	19.33
10,	126	25	19.84
11,	94	23	24.89
12,	89	29	32.94
13,	69	21	30.43
14,	39	14	35.89
15,	10	6	60.00
Over 20,	54	17	31.84

It will be seen from the above, that the number of susceptibles is far higher than is shown by the table given in Dr. White's article.[1] This is especially noticeable in the ages over twenty, where we show 68.16 per cent of susceptibles compared with 12 per cent shown in the table, but, of course, our total is too small to have any material weight. In certain other respects our results conform more closely to the normal.

Zingher, in his paper before the American Medical Association in June, states that, in New York, they found that the number of susceptibles was much higher among the children of the better class than among those in the tenement districts, and, in a certain measure, our results agree with this statement.

Thus in two schools, situated in districts fairly comparable with the tenement district, 208 children tested showed 77, or 37.01 per cent, immunes, while in five schools in the better districts, 187 children showed 32, or 17.11 per cent, immunes.

Again, in one school with a high per cent (78) of children of Italian parentage, 100 children showed 31 per cent of immunes; in another, with a high per cent (78) of Italian and French Canadian parentage, 108 children showed 42.59 per cent of immunes; while in two schools with a high percentage (90) of American parentage, 104 children showed only 16.34 per cent of immunes.

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[1] Boston Medical and Surgical Journal, March 10, 1921.

Now for a word as to immunization. It is our policy to leave this, in great measure, to the family physician. This is in accordance with the long-standing policy of the Newton Board of Health of working with and relying on the family physician whenever possible.

We believe that the family physicians constitute a bond of union between the Department and the public, and that they can be relied on to aid us whenever asked to do so, and we are proud to say that, in the experience of over a quarter of a century, this reliance has never been found to be misplaced. For this reason we believe that the immunization will be done; more slowly, perhaps, than if the board were to do it, but still that it will be done.

Another factor that will slow up the work a little is the occurrence of vacation. Our preliminary work took so long that our testing was not really started until May, so that we do not look for much general immunization until the schools reopen. We also found that the number of children asking to be tested was so much larger than we expected that we were rather overwhelmed, and so were delayed in getting out our notices to the parents of susceptibles.

We know that a certain number of susceptibles have already been, or are in process of being, immunized by their own physicians, and another set has been referred to the Department for immunization.

In order to keep a record of immunizations, each physician who applies for the toxin-antitoxin is asked for the name of the patient or patients on whom he proposes to use it.

This information is recorded upon the proper card, so that the case may be followed up and later tested for immunity. Of course, if it should appear that the physicians do not care to do the immunization themselves, the board will do it, as it would be foolish to stop halfway.

Certain things have impressed us very much during the work. In the first place, the number of children who took the test was surprising. We thought that we might do a couple of hundred, all told; in fact, our early instructions to the nurses were that if they could not get at least 10 to be tested at any one time they were to notify the office and wait until they could get that number. When we would reach a school and find classes of 50, 60 or 100 eager children waiting to be tested we decided that we had been somewhat conservative in our estimate.

Another very pleasing aspect of the work was the hearty co-operation of every one concerned. The physicians, with a few exceptions, urged their patients to have their children tested; the teachers aided the nurses in getting the permits ready for signing; the nurses started a friendly rivalry to see who could turn out the largest classes; the mothers became interested and called up the office for information about it, sometimes even criticizing the Department severely because, by some mischance, they had not heard of it and so their children had not been tested; even the children discussed it, and in some instances are known to have tearfully besought reluctant mothers to sign the permit which would let them find out whether they were safe from catching diphtheria. As an illustration of the interest shown by the children the following incident may be cited. A few days before the testing was to be done in one of the schools, the nurse was asking who wanted blanks to take home for signature, when a child said that his doctor told him not to have it done, as it was just "putting poison into you," whereupon another child spoke up and said that his doctor told him to have it done; that he knew a little boy who had had diphtheria and could hardly talk, and if he had only had this done and had been treated afterwards, if he needed it, he would not have caught it and would have been all right.

The teachers were, as a rule, much interested, and their co-operation or lack of it did much to make or mar the success of the work; it was very easy to tell, by the size of the classes, in which schools the teachers were interested and in which they were hostile or indifferent. In the former case both teachers and children were intensely interested in the results of the test, the teachers asking for an explanation of the whole process, saying that the children would be sure to ask about it later, and they wished to be able to answer their questions intelligently. When the arms were read, the children asked, "Can I take it?" and if the answer was in the affirmative, would say, "Then I must be made so that I won't take it."

In conclusion, our experience has been most gratifying, and has shown what can be done in a community with very little trouble and with almost no expense.

The total cost to the Department was $126.42, which covers the entire outlay for items which would not have been incurred if the work had not been undertaken.

If at the end of a year we can show that a single immunized child has been saved from death, or even from a sojourn in the isolation hospital, it would be a very bold man who would venture to say that the expense was excessive.

SEPTIC SORE THROAT FROM THE VIEWPOINT OF A FIELD WORKER.

By Charles E. Simpson, M.D., State District Health Officer.

SEPTIC sore throat is one of the more important diseases that modern science and intensive research work have, comparatively recently, enabled the medical profession to sift definitely from the mass of human ailments that have hitherto gone without a classification. Sufficient knowledge of the characteristics of this disease has already been shown to give it an important place in the health officer's curriculum.

With the diagnosis definitely made it can be quickly and effectively controlled, but the experience of the writer leads to the belief that much research work remains to be done before we can reach the health officer's ideal of efficiency by preventing the inception of outbreaks rather than controlling them after they have already taken place. Until the clinical diagnosis can be made more positive, conclusions on various points must be somewhat uncertain. There seems to be no data yet to show that septic sore throat is communicated other than through the medium of food, usually milk.

The doctor to-day is inclined to report as septic sore throat any severe pharyngitis with marked constitutional symptoms that the laboratory reports as negative for diphtheria, and which does not show characteristic follicular tonsillitis appearances, or is not accompanied by any other scarlatinal symptoms. The writer recalls three instances where he has been consulted to help in clearing up an outbreak of sore throats, — two in institutions and one among private patients in a city where rather serious results had occurred from the true character of the disease not having been determined earlier. Two of the three were found to have been diphtheria, although negative cultures had been previously reported from diagnostic laboratories, and the third was septic sore throat that had been considered as diphtheria on account of one positive having been found among a group of cultures.

Etiology. — Early in our work it was recognized to be a streptococcic infection produced by drinking infected milk, and some bacteriologists were inclined to believe that they could differentiate the type by the length of the chain formation, while others put more stress on finding streptococci mixed with clumps of pus cells. Later it was ascertained that either of these conditions could be found in the average gargety cow, but that garget among cows was very common, while septic sore throat outbreaks were not very numerous. Next it was found that the specific type had hemolytic properties, but it was soon found that there were many hemolytic types. Few diagnostic laboratories are equipped to go thus far, but it became necessary to go still farther, and while the research workers in the different countries have given different names to their specific type that they believe causes the disease, our laboratory recognizes as positive only the beta type of the Smith and Brown classification. In our Massachusetts reports, positive findings are reported only when the beta type is shown to be present.

Symptoms. — The throats are swollen and red, with considerable infiltration involving the whole fauces; considerable pus is usually present, and there may or may not be some membrane; constitutional symptoms are usually marked. No case should be positively diagnosed without careful culturing for diphtheria, and then, if negative for diphtheria, sending a culture to a laboratory that is equipped to type streptococci, and asking them to do such typing. The ordinary diphtheria outfit can be used for this.

Prognosis. — That constitutional symptoms are severe and that deaths occasionally occur are certain, but until the diagnosis is more accurate and reporting better carried out, the average fatality rate will be hard to determine, as shown by the following table of four outbreaks in which the writer was interested: —

PLACE.	Cases reported.	Deaths.
Watertown,	–	3
Somerville and Medford,	49	2
Winchester,	43	–
North Reading,	32	–[1]

[1] One developed appendicitis during attack, was operated on, and died.

Contrast with this, to show poor reporting of cases, official reports of cases and deaths in Massachusetts for 1916, 1917 and 1918: —

YEAR.	Cases reported.	Deaths.
1916,	159	67
1917,	270	59
1918,	107	25

Epidemiology. — The causative agent is undoubtedly the beta type of streptococcus. Whether this is capable of still further subdivision remains to be determined. That it may be present in a considerable proportion of throats without causing local or constitutional symptoms was shown in connection with the North Reading outbreak reported later in this article. The explanation of such an incident would seem to be that we may find a group of people quite tolerant to the organism, or that there is a less virulent subdivision of this type.

The incubation period is short, being usually not over three days, and rarely, if ever, exceeding five days. Pasteurization destroys the virus and will control a milk outbreak unless the infective agent is introduced beyond that point in handling the milk supply.

There is no evidence to show that the disease is transmitted by contact, but rather that it is contracted through the medium of ingestion of infected food products, usually milk, and stops immediately on the removal of such infection from the food.

As with other milk-borne outbreaks, evidence seems to show that it is not the cow that is primarily to blame, but that careful searching will usually find an infected person among the milk handlers. As to whether he is a chronic carrier, or how he becomes infected, there seems to be no practical data.

OUTBREAKS.

1. Watertown had a rather serious outbreak in 1916. The writer did not make personal investigation, but advised the local health officer what steps to take in determining the cause and controlling its ravages. Official figures of the number of cases were not recorded by the local officer, but some 20 cases were reported to him, covering three or four days, and among these there were 3 deaths reported. They all received milk from the same farm.

Investigation found one of the men on the farm with a slightly reddened throat, that gave a hemolytic streptococcic culture. There was also found a cow with an atrophied but inflamed quarter that gave a similar culture from a few drops of pus squeezed from the teat. With the man and cow removed and utensils sterilized, the outbreak was under control within a few days.

These cultures were examined at Harvard.

2. In 1917 an outbreak occurred in Somerville and Medford simultaneously, with 49 cases and 2 deaths. They were on the same milk route.

Investigation showed that the milk was supposed to be pasteurized, but that the clock for recording the temperature to which it was heated had been out of order for some time. The man who did the capping of the bottles was found to be suffering from a severe attack of septic sore throat, shown by both clinical symptoms and laboratory findings. Cultures were made and examined in the State laboratory.

In this case the milk was probably infected in the process of capping, after it had passed the pasteurizer, so if it had been properly pasteurized the result would have been the same.

3. Winchester had an outbreak in June, 1920, consisting of 43 reported cases and no deaths. All were on the same milk route. Investigation here showed several gargety cows, two with a very severe inflammation of the udder. The first culturing of all connected with milking or handling the milk showed all to be negative for hemolytic streptococci. A second set of cultures, however, showed one of the boys who milked, as well as delivered milk, to have the characteristic organism. The cow streptococci were non-hemolytic.

At the first notice of the outbreak a pasteurizing plant was extemporized, and the milk pasteurized under the supervision of the local health officer, with the result that there were no new cases later than three days after the pasteurizing was carried on and the infected boy removed from his contact with the milk.

4. In March, 1921, an outbreak occurred in one of the State hospitals. Thirty-two cases were reported, mainly among the nurses and attendants. One nurse developed appendicitis and was removed to a hospital where she was operated on and died the day following operation. No culture was taken from the abdomen to show whether the same virus was responsible for the appendicitis, or whether it was coincident.

In this outbreak it was clearly shown that the milk was not guilty. The first of the group of sore throats on the premises was an assistant baker, a part of whose duties was to cut the pastry and put it on certain trays that were eventually distributed to the infected group. All infected cases were isolated and all food handlers were cultured, and if any were found positive they were isolated. Of the 32 positive, 9 were found negative on the first culture, but positive on the second.

What seems an important incident in connection with this outbreak occurred in culturing the help that applied to fill the places of some of the sick ones. It was thought wise by those in authority to culture all that might be taken in as food handlers. They were much surprised to find that out of 10 apparently healthy persons that were sent from a Boston employment bureau, 3 gave a culture of the beta type of hemolytic streptococci. Culturing was done in the State laboratory.

CONCLUSIONS.

Septic sore throat outbreak is explosive in type.

It is capable of causing much disturbance in a community and some deaths among the patients.

Owing to lack of facilities for diagnosis and poor reporting, the fatality rate is impossible to determine with accuracy.

Present data would go to show that it is not spread by contact.

A temperature of 145° F. for thirty minutes destroys the virus.

The incubation period is short and outbreaks are quickly controlled.

The beta type of hemolytic streptococci does exist in the throats of people who are not sick.

It is not wise to rely upon one negative culture.

More intensive work on the diagnosis of throat troubles would be of benefit to patients and community.

THE COMMONHEALTH.

Bimonthly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

Death of Dr. William J. Gallivan. — As we go to press, word has been received of the death of one of the most beloved members of the Department's staff, Dr. William J. Gallivan, Director of the Division of Tuberculosis.

Physically handicapped by an ailment which he knew to be inevitably fatal, Dr. Gallivan served the State and this Department with cheerfulness and with efficiency. A man of wide experience and real accomplishment, he was the most unassuming of men; a self-made man, yet he was singularly unassertive and considerate of the opinion of others. He set a brave example of how to live well and to die without fear. — M.E.C.

The Public's Part in the Control of Communicable Disease. — As a people, we Americans are very proud of our democratic form of government. We like to feel that the government is responsible to the people and is dependent entirely upon the will of the people. Yet too frequently this means only a very pretty theory to us. Nowhere, in this respect, do theory and practice conflict to a much greater degree than in the control of communicable disease.

Our Massachusetts health system — probably the most democratic in the country — is based upon the principle that the supervision of the health interests of the community is vested in a person or a group of persons designated for this duty, either directly through election by the people, or indirectly through appointment by a responsible officer elected by the people. This delegation of authority is, of course, merely for simplicity of administration; it does not absolve the board of health from responsibility towards the people, neither does it absolve the people from responsibility for the conduct of their own health affairs. Many times, however, the individual citizen seems to maintain towards the board of health an attitude similar to that of the small boy towards his teacher; he seems to feel that it is entirely proper to fool him if he can do so without getting caught. Many a citizen who will support his country in time of war will not support it in time of peace by standing back of his board of health in its efforts to protect all the children of all the people against the dangers of communicable disease. His reasoning seems to be, "If the other man's child has a communicable disease, of course he ought to be quarantined to protect my child; but if my child has the same disease, why that is a different matter entirely; quarantine is such a nuisance, anyway, and interferes with business."

The sturdy, loyal citizen who believes in his community and its institutions, and who feels his own responsibility as a citizen for helping to sustain the well-being of his community, will be the best friend the board of health has. If luck goes against him, and his child gets a communicable disease, he will not plead any excuse, religious or otherwise, for not obeying the law; he will do unto his neighbor as he would have his neighbor do unto him, and will cheerfully undergo the hardship of quarantine for the sake of the neighbor's child. Realizing his responsibility to the community, he will not let superstitious fancies keep him from doing his share, through getting vaccinated, towards warding off smallpox from his community. He will use his ballot and his influence to get a high-grade board of health for his town, and will loyally support his board of health when it is elected.

When this most desirable state of affairs prevails, and only then, will the truth of Pasteur's wise saying be manifest: "It is within the power of man to banish from the world all infectious diseases." — M.E.C.

Syphilis and Child Welfare. — On first thought no one except the trained expert gives heed to syphilis as among the communicable diseases to be considered in relation to child welfare.

But let us glance through a few facts as they are gradually coming to light in recent studies of this disease.

Osler said, "There are more families with the syphilitic than with the tuberculous taint."

Wile states that the infant mortality rate is higher in syphilis than in scarlet fever, diphtheria, influenza or tubercular meningitis.

Findlay gives evidence that 75 per cent of all deaths from syphilis occur in children under five years of age.

Williams finds that 183 of 705 stillbirths were caused by syphilis.

Jeans, after a study of a large number of cases over a long period, states that only "17 per cent of the children of syphilitic parents are spared; 30 per cent die at or before birth; 40 per cent die early; 5 per cent develop the disease in later years."

Holt found an incidence of 6.2 per cent among a group of dispensary children under two years of age in New York.

Perhaps these statements taken from recent literature may suffice to remind all workers with children that syphilis is a very real and ever-present problem, to be taken into consideration in all child-welfare work, both in its relation to the individual child and to its family.

Besides the deaths already noted and the suffering caused by undetected cases of syphilis, the toll taken by the disease is further increased by the lowered resistance of syphilitic children to tuberculosis, rickets, epilepsy and various other diseases of childhood.

One case of congenital syphilis in a family always indicates a strong possibility of other cases existing in the same family. Hence, home visiting in these cases is essential to all effort to eradicate the causes of the disease. While tact is required, the difficulties in this type of follow-up work have been greatly exaggerated, and are daily being overcome in all up-to-date clinics.

The question of the moral or economic status of a family should not enter into consideration in such cases. Until such time as, hopefully, society may in the slow process of evolution be regenerated throughout its structure, we must clearly recognize the constant presence of this disease in all strata of human society.

Let us never fail to take advantage of the hopeful outlook for the syphilitic prospective mother and for her baby, provided the presence of the disease can be discovered and intensive treatment given as early as the third or fourth month of pregnancy. The longer the time before the condition is discovered the greater is the likelihood of its inevitable damage being done to the infant. Besides, treatment of the young infant is beset with marked difficulties which may be avoided by treatment of mother and child simultaneously through the mother's blood stream during the early months of pregnancy.

It seems we must all cultivate the "suspicious mind," which Stokes tells us is the absolute essential to the unearthing of the lurking cases of syphilis, which up to the present enlightened day have been overlooked.

A pamphlet on this subject has recently been added to the list of publications issued by this Department, and may be had on application, under the title, "Syphilis in Prenatal and Child Welfare Work." — M.R.L.

Prenatal Letters. — The Department takes this opportunity of reminding physicians and others interested that prenatal letters are sent out by the Department at monthly intervals to expectant mothers desiring them. These letters are intended to supplement the advice of the attending physician, and are in no wise expected to render unnecessary his oversight of his patient during her prenatal period.

After the birth of her baby the mother may obtain monthly postnatal letters until her baby is a year old.

The co-operation of physicians, nurses and citizens in general is earnestly requested by the Department of Public Health in its effort to contribute in this way to the reduction of maternal and early infant mortality and morbidity.

TRIBUTE TO PROF. WILLIAM T. SEDGWICK.

The following tribute to Prof. William T. Sedgwick, a member of the Public Health Council of the Massachusetts Department of Public Health from its inception, was sent to Mrs. Sedgwick by his former colleagues of the Council: —

To the Memory
of
William T. Sedgwick

Pioneer in modern public health science.
Teacher: nationally loved.
Author: internationally appreciated.
Councillor: universally sought for,
this page is dedicated by the Public
Health Council, of which he was
an original member, in sweet
remembrance of his charming
personality, as a man; his wisdom,
as an adviser; his boundless activity
and good will as a co-worker.

PUBLIC HEALTH NOTATIONS.

By Francis A. Finnegan, M.D., State District Health Officer.

IN our daily administration of the rules and regulations safeguarding the health of our respective communities, it is well that we pause now and then to meditate so that our memories may be refreshed with lessons long since learned. Hence it is we offer for the guidance of health officers and physicians these few notations in the control of communicable diseases, and the differential diagnosis of a few of the more obscure reportable diseases.

Remember — That most diseases are spread by direct contact with a sick case, or indirectly through contact with discharges from a sick individual or a carrier.

Remember — The milk-borne diseases, typhoid, tuberculosis, diphtheria, septic sore throat, scarlet fever and smallpox.

Remember — That typhoid is spread by fingers, flies and food.

Remember — The diagnostic aid of a blood test (Widal) in typhoid.

Remember — That the Widal test is not positive until the end of ten to fourteen days, and may even then be delayed for a longer period.

Remember — That a typhoid carrier is not a sick person.

Remember — That great care should be exercised in the treatment of stools and urine of a typhoid patient or carrier.

Remember — That the typhoid vaccine as furnished by the State will assure a high degree of immunity. It should be given for prophylactic purposes to all contacts.

Remember — That a negative sputum does not mean that one is free from tuberculosis.

Remember — That a sputum intermittently positive and negative is not uncommon.

Remember — That tuberculosis in childhood in a certain proportion of cases is spread by milk from tuberculous cows.

Remember — That pasteurizing milk offsets the danger of the spread of tuberculosis through milk.

Remember — The value of the Von Pirquet skin test in children under five years of age.

Remember — That in children over five years of age a positive Von Pirquet means tuberculosis infection, not necessarily tuberculosis disease.

Remember — That a persistent cough lasting over two weeks needs attention. Insist upon a thorough physical examination, with special reference to the chest.

Remember — The early signs of tuberculosis such as an unaccountable loss of weight, easy fatigue, cough, etc.

Remember — That early tuberculosis of the lungs may not manifest physical signs.

Remember — That every sore throat should be cultured.

Remember — That all contacts with a case of diphtheria should be cultured.

Remember — That every case of diphtheria should receive *antitoxin early*.

Remember — That all contacts with diphtheria should receive an immunizing dose of antitoxin.

Remember — That by the Schick test we can separate the immunes from the non-immunes.

Remember — That non-immunes can be actively immunized with *toxin-antitoxin*, three doses, 1 c.c. in each dose, and given a week apart.

Remember — That in school epidemics it is well to culture everybody, — teachers, pupils and janitors, — in the possibility of locating a carrier or a mild unrecognized case.

Remember — That every exudate upon the tonsils should be cultured.

Remember — To culture all discharges from the nose in children for the presence of nasal diphtheria.

Remember — That the thorough medical man never diagnoses a sore throat upon inspection alone.

Remember — That in the control of a school epidemic the thorough daily medical inspection and the follow-up of absentees are important.

Remember — That scarlet fever is spread by direct contact with the sick individual or with discharges from the sick individual.

Remember — That the theory of desquamation being the most infectious stage is now obsolete.

Remember — That the dangerous sequelæ of scarlet fever are cardiac and renal complications.

Remember — The difficulty in differentiating chicken-pox from smallpox in adults especially.

Remember — That in smallpox the severe constitutional symptoms antedate the appearance of the rash.

Remember — The severe lumbar pains in smallpox.

Remember — The homogenous type of lesions in smallpox.

Remember — The value of vaccine virus for prophylactic purposes for all contacts with smallpox.

Remember — That measles is most infectious in the coryzal stage, before the rash appears.

Remember — That non-immunes exposed to measles show a slight rise in temperature even before the onset of the true coryzal stage.

Remember — That the dangerous sequelæ of measles and whooping cough are broncho-pneumonia and early tuberculosis infection, later becoming a real tuberculous entity or disease.

Remember — That the etiology of influenza is not yet definitely known.

Remember — That since the disease in its present high mortality type is confined to the respiratory tract, we should take the precautions used in other respiratory diseases against coughing, sneezing, expectorating, etc.

Remember — The danger attached to the use of the common drinking cup and the common towel in all respiratory diseases and other diseases where infectious material is liable to be carried thereby.

Remember — That during the epidemic of 1918 investigators claimed some value for the use of serum from convalescent patients when injected intravenously into the influenza patient. A Wassermann test should be done on the blood of the donor.

Remember — That true influenza gives a leucopenia or low white count.

Remember — That there are four types of pneumonia, — I, II, III and IV.

Remember — That all pneumonia should be typed.

Remember — That the laboratory of the State Department of Public Health will willingly do your typing. Sputum must be sent in to do this.

Remember — That the State Department of Public Health will furnish serum for type I pneumonia.

Remember — That the diagnosis of trichinosis is made by the examination of the blood, where a stained smear shows the presence of an eosinophilia, or by incising a piece of muscle (gastrocnemius) in which the encysted trichinæ are found.

Remember — That pains in trichinosis are due to the interstitial myositis.

Remember — That a history of eating pork not thoroughly cooked is frequently obtainable in cases of trichinosis.

Remember — Not to confuse the swollen lids of acute nephritis with the swollen lids of trichinosis. Urine tests rule out trichinosis.

Remember — That in suspected anthrax lesions smears should be obtained to detect the presence of the bacillus of anthrax.

Remember — That anthrax serum should be given for therapeutic purposes.

Remember — That in cases manifesting meningeal symptoms, lumbar punctures should be resorted to as a means of differential diagnosis.

Remember — That the character of the spinal fluid and the staining for the presence of organisms in the fluid, together with the cell count and the presence of globulin, are some of the important laboratory points.

Remember — That the four diseases to be thought of first are cerebrospinal meningitis, tubercular meningitis, anterior poliomyelitis and lethargic encephalitis.

Remember — That anti-meningitis serum is to be given intraspinally in cerebrospinal cases, and in cases where there is a grave suspicion of cerebrospinal meningitis. In very severe cases it is well to administer it intravenously.

Remember — That all births should be promptly reported by physicians and parents.

Remember — That new-born babies should be carefully watched for the onset of ophthalmia.

Remember — That every new-born baby should receive prophylactic eye treatment immediately at the birth and for two days following.

Remember — That good control of ophthalmia cases requires prompt reporting of such cases by physician and householder.

Remember — That the board of health should make a thorough investigation into all ophthalmia cases.

Remember — That neglected ophthalmia cases may lead to blindness or to impaired vision.

Remember — That institutional care is to be recommended in those cases where social and economic conditions are bad.

Remember — To supervise mothers through the prenatal period.

Remember — The value of a prenatal clinic.

Remember — That the best food for the baby is breast milk.

Remember — That the best substitute for breast milk is cows' milk modified.

Remember — To be regular in feeding the baby.

Remember — To keep flies away from the baby's food.

Remember — To keep milk clean and cool.

Remember — That trachoma is a chronic inflammatory disease of the eyelids.

Remember — That trachoma is communicable and is contracted by coming in contact with the discharges from the eyes of persons suffering from this disease.

Remember — That trachoma may be spread by the common towel or by the use of bowl or washpan or handkerchief after an infected person, or the use of other articles carrying secretion from the infected eyes.

Remember — That slight paralytic and non-paralytic cases of anterior poliomyelitis are most frequently sources of infection.

Remember — That the disease usually develops from three to ten days after exposure.

Remember — That the disease in its paralytic form usually picks out one or more groups of muscles, and the paralysis is of the flaccid type.

Remember — The value of clean drinking water.

Remember — The water-borne diseases, — typhoid, diarrhea, cholera and dysentery (amebic and bacillary).

Remember — That in rural districts, wells should be located some distance from stable or privy, and that drainage from these should be in the opposite direction from the well.

Remember — That water-tight curbing should protect the well against surface drainage.

Remember — That the privy and privy vaults should be flyproof.

Remember — That the privy should be sanitary.

1. Flyproof.
2. Have water-tight receptacle.
3. Be well ventilated.
4. Be easily accessible for cleaning.

Remember — That for malaria to be definitely determined, an examination of blood is needed in both thin and thick (Von Ezdorf stain) smears.

Remember — That to have malaria we must have, first, the infected individual and the Anopheles mosquito, female species.

Remember — That many apparently healthy individuals have proved upon blood examination to be malaria carriers.

Remember — That in malarial districts the control of malaria is had by treating the sick individual and the carrier by quinine, screening his habitat and destroying the breeding places of the mosquito; by oiling, ditching and draining the marshes, pools, rain barrels and bodies of water where it hibernates.

Remember — That the Anopheles do not breed in deep water or at a distance from the shore.

Remember — That the Anopheles may fly a mile or more; but such long flights are unusual.

Remember — That mosquitoes may be carried frequently several miles by the winds, but these mosquitoes are never Anopheles.

Remember — That a mosquito cannot infect a person with malaria until at least eight days after it has bitten an individual with the malaria parasite in his blood.

Remember — That the life cycle of the mosquito includes four stages, — egg, larva, pupa, adult mosquito.

Remember — That in epidemiological investigations the following are points of interest: —

1. Location of primary source of infection.
2. Tracing routes of infection.
3. Best methods for control of infection.
4. Post mortems for verification of epidemiological diagnosis and administrative treatment.

Remember — To fix the time of infection, — onset of cases.

Remember — To fix the place of infection and movements of the patient.

Remember — To fix the mode of infection, and in so doing to show exposure of patients to vehicles of infection.

Remember — That detailed data are important.

1. Identification date, name, age, sex, nationality, occupation, residence when taken sick.
2. Clinical data, onset (earliest symptoms), date of report, previous attacks of disease, precaution against further spread, artificial immunization and laboratory tests.
3. Sources of spread and routes of infection, — food, milk, water, environment (usual and unusual); trips; contacts with patients (usual and unusual).
4. Patient as focus of infection, stage of disease.

PROGRESS OF THE MASSACHUSETTS CAMPAIGN FOR THE CONTROL OF VENEREAL DISEASES.

By Howard A. Streeter, M.D., Chief, Subdivision of Venereal Diseases, Massachusetts Department of Public Health.

BEFORE undertaking new work one should carefully count the cost, and frequently during the course of the undertaking should take an inventory to determine whether the results obtained justified the financial outlay. That the Massachusetts Department of Public Health carefully counted the cost of a venereal disease control program before launching the program is admitted, but that subsequent inventories have been taken may not be so well known.

The Massachusetts campaign for the suppression of venereal diseases started in 1915 when the Wassermann Laboratory for examination of blood specimens was opened. The Legislature of 1916 authorized the expenditure of funds for the purpose of ascertaining the practicability of purchasing or manufacturing arsphenamine for free distribution within the State. Thus in the very beginning, before any popular campaign was launched, this State, through its Department of Health, provided free diagnostic facilities and took first steps toward providing free treatment.

It is unnecessary here to recount historically the several events and stages of the campaign for the suppression of venereal diseases, but it appears desirable to render an account of the various activities connected therewith.

Reports. — Contrary to a belief which appears to be somewhat prevalent, efforts to control venereal diseases, while actively launched in war times, are a permanent fixture in health administration. It is as incumbent upon the medical adviser to report his cases, and as necessary for the health authorities to restrain known incorrigible individuals, as it was during the darkest days of the war. Syphilis and gonorrhea are as infectious and just as dangerous to health at the present time as they were three years ago.

Regulations governing reporting provide that cases shall be reported by number, except under certain conditions, not to the local health authorities, but to the Department of Public Health. While it might appear to the casual observer desirable to have reports made otherwise, a careful study of the system indicates that present regulations were wisely drawn.

Statutes authorize any board of health to require other forms of reports should local conditions appear to warrant a change.

Physicians are requested to report by name to the Department of Public Health those patients who fail to return for treatment and those careless patients who are a menace to the community. These cases are in turn reported to the local health authorities, who may proceed in accordance with laws governing the control of communicable diseases.

Care of Patients. — General Laws, chapter 111, section 116, provide that boards of health shall care for persons suffering with diseases dangerous to the public health. Procedure in caring for those infected with venereal diseases differs slightly from procedure in other cases. A person infected with venereal diseases should be reported by number and then by name to the Department of Public Health, who will in turn notify the board of health of the town or city in which the patient has a legal residence, or the proper State authorities. This procedure is necessary if a board of health wishes to recover for care of non-residents.

Lapsed Cases. — A procedure more or less arbitrary has been adopted to insure reference to local authorities of only those lapsed cases which are actively infectious. If three months in cases of syphilis and four months in cases of gonorrhea shall have elapsed between the date of the numbered report and the lapsed report, it is fair to presume that the patient has received sufficient treatment to render him non-infectious. Before referring these cases to the health officer for investigation, inquiry is made to ascertain whether they are infectious, and the answer to this inquiry guides further procedure. This procedure, while leaving much to be desired, appears to have much to commend it.

Clinics. — There are at present 18 State-approved clinics for the treatment of venereal diseases.

From June 1, 1919, to June 1, 1921, these clincis treated 14,560 new cases, gave a total of 259,797 treatments, and administered 68,992 doses of arsphenamine. The average monthly attendance was $5{,}685\frac{1}{2}\frac{3}{4}$. These figures show the value of the clinics to infected individuals and to society in general.

Statistics. — During the early months of the campaign to control venereal diseases — this is a general statement and refers not to any State but to the country as a whole — statistics purporting to indicate the prevalence of venereal diseases were published and distributed broadcast. Many times it was difficult and even impossible to harmonize these figures with estimates or reports readily available It appears rather unfair to collect statistics in institutions for treating various ills of either mind or body, and use them as an index of the prevalence of disease in the population as a whole. It is fair to assume that people seek treatment or are confined either willingly or unwillingly in institutions because they are physically or mentally subnormal, and consequently belong to a selected group which cannot present a true cross-section view of the population.

From Feb. 1, 1918 (the date when venereal diseases became reportable), to Jan. 1, 1921, 24,341 cases of gonorrhea and 10,397 cases of syphilis have been reported.

YEAR.	Gonorrhea.	Syphilis.	Total.
1918,	7,681	3,284	10,965
1919,	9,435	4,127	13,562
1920,	7,225	2,986	10,211

The rates of incidence of venereal diseases per 1,000 population in Massachusetts, based on estimated populations, are 1918, 3.44; 1919, 3.53; 1920, 2.65. These figures indicate a lessened rate of infection, and this conclusion is substantiated by personal statements of physicians. To secure, so far as possible, a true cross-section estimate of the prevalence of venereal diseases and of the true value of morbidity reports, all physicians in certain cities and towns were personally interviewed. These physicians stated that cases of venereal diseases were markedly lessened in number; that they had reported and would continue to report all cases seen by them; that requests for careful physical examinations, including examinations of blood specimens, were increasing; that in their opinion the educational features of the program were teaching people the value of proper living and the dangers of promiscuous sex relations. Genitourinary specialists state that they are seeing a larger percentage of acute infectious cases. This indicates that the infected individual is seeking treatment from specialists more promptly than formerly. Requests are received daily at the office, either in person or by mail, for reference to a clinic or hospital where proper examination and treatment, if needed, may be secured.

Statistical studies and reports published often indicate the prevalence of a high venereal rate among inmates of penal institutions. In 1920 every penal institution in the State was visited to learn methods used for examination to determine presence or absence of infection, modes of treatment, and number of infections discovered. The venereal rate in the penal institutions of the State is very low. In some jails no cases have been recorded since the passage of the law requiring examination of prisoners confined for periods of thirty days or more.

Careful studies of statistics relating to prevalence of congenital syphilis and to syphilis in pregnant women will probably be available before the lapse of many months, and according to present indications will be interesting and instructive.

Courts. — Since Sept. 1, 1919, every court — superior, police and district — in the State has been visited and personal interviews held with judges, clerks and probation officers. This was for the purpose of ascertaining court procedure in cases of actual and suspected sex offences, and to acquaint court officials with the aims and purpose of the venereal disease campaign. So far as is known no other State has completed a similar survey.

Social. — Reported sources of infection have been investigated and interesting situations discovered. In some instances these reports were apparently maliciously made; in a few jealousy appeared to be the motive; in no instance was the investigator received otherwise than courteously; examinations were secured and treatments instituted. This was accomplished without the aid of a statute specifically permitting such procedure. It appears fortunate that this State lacks drastic legislation permitting forcible detention and examination, and certainly the venereal disease campaign is not the target for abusive criticism obtaining in certain other States. Through co-operation with the Department of Correction plans are outlining for social service in families of prisoners who are infected. This plan is not sufficiently mature to justify any elaboration at the present time. A comprehensive plan for assisting all clinics to establish and to maintain adequate social service, outlined a few months past, has been temporarily postponed.

Wassermann Examinations. — The number of blood specimens submitted for Wassermann examination is steadily increasing, and indicates that physicians are exercising greater caution in obscure cases. In one city the health officer is, and for several months past has been, active in urging the physicians of the community to submit samples in doubtful cases, with the result that proper treatment indicated by the laboratory report has worked seeming miracles. In 1918 the laboratory made 27,760 examinations; in 1919, 32,390; and in 1920, 37,207.

Arsphenamine. — The Department laboratory for manufacturing arsphenamine is equipped and prepared to furnish the drug in sufficient quantities to meet the demand of physicians and hospitals throughout the State.

In 1918, 3,507 ampoules were distributed; in 1919, 21,667; and in 1920, 26,782.

Supplies of arsphenamine may be obtained at any State approved clinic, through the District Health Officer, or, in emergency, directly from the office in the State House.

Educational. — If any great progress is to be made toward the suppression of the so-called red plague, people must be educated, and this education must include the mode of infection, which means not only the mode due to sex irregularity, but also the possibility and probability of accidental or innocent infection; the symptoms and course of the disease; its possible and often only too probable late manifestations; the danger of transmission, not only to present members of society, but also to unborn children; the cost in money and in mental and physical suffering to the unfortunate and to society in general; and last, but by no means least, parents should be educated as to their responsibility to their children. The age at which this education should begin is an open and debatable question. Each parent has different ideas; each would like to have the neighbor's child educated, but thinks his child does not require such education. Studies along scientific lines, while disclosing many interesting facts, appear to have failed to establish any positive conclusion. Information available indicates that this education is delayed too long, and further indicates that if parents would shed their false modesty they and their children would be spared some uncomfortable situations.

As opportunity presents, the aims and purposes of venereal disease control measures are outlined and the sympathy and co-operation of organizations and societies sought. Lectures either with or without stereopticon slides are available.

Study groups, or rather conference groups, of interested women are gathered from time to time in various cities and towns and instructed in the needs for properly educating people in venereal diseases and allied subjects.

Early in 1920 a particular campaign or drive to reach the adolescent boy was inaugurated at the request of the United States Public Health Service. During this campaign 60,000 boys between the ages of fifteen and twenty years were reached in Massachusetts with lectures, pamphlets or a poster exhibit. Letters were received from all over the State commending this campaign and the purposes it sought to accomplish.

Meetings of clinic directors and clinicians are held quarterly for instruction in the latest methods of diagnosing and treating venereal diseases. These meetings also afford opportunity to discuss matters relating to the conduct of clinics.

Over half the physicians of the State have signed statements promising support to the venereal disease control program; three-fourths of the druggists have promised to sell no remedies for venereal diseases except on prescription; and nearly all the newspapers published in the State have promised to refuse advertisements of quack venereal disease remedies.

How can a local health officer aid in this campaign? To fully answer this question would consume too much time, and might cause the health officer to imagine that the only activity worth mentioning is venereal disease control. This is an important branch of health administration and should receive a share of the health officer's time.

The method of reporting tends to keep local authorities in ignorance of the true incidence of the disease, and thus prevents any extensive epidemiological investigations. It does not appear that these investigations bring any satisfactory results, nor will present public opinion sanction any intensive epidemiological studies. Any health officer can aid in a seemingly small way, but large in the aggregate, and can add from time to time until he shall have a well-rounded venereal disease control program for his community.

1. Investigate promptly all lapsed cases referred and report his findings.
2. Keep on hand at all times a supply of tubes for collecting blood specimens (these may be obtained from the Wassermann Laboratory, 240 Longwood Avenue, Boston, Mass.), and remind physicians that these are available.
3. Have a supply of pamphlets for distribution.
4. Urge physicians to report all cases.
5. Seek co-operation of police department.
6. Make preliminary arrangements for lectures and poster exhibits.
7. In the larger towns and cities consider the advisability of organizing a clinic.

To summarize: —

Clinics in operation,	18	
In contemplation,	6	
Total cases reported: —	Gonorrhea.	Syphilis.
1918,	7,681	3,284
1919,	9,435	4,127
1920,	7,225	2,986
Total,	24,341	10,397
Rate per 1,000 population: —		
1918,		3.44
1919,		3.53
1920,		2.65

Wassermann examination: —	
1918,	27,760
1919,	32,390
1920,	37,207
Smear examination: —	
1919,	4,035
1920,	2,815
Arsphenamine distributed: —	
1918,	3,507
1919,	21,667
1920,	26,782
Pamphlets distributed: —	
Year ending May 31, 1919 (estimated),	20,000
June 1, 1919, to Dec. 31, 1919,	21,762
Jan. 1, 1920, to Jan. 1, 1921,	59,278

Every court in the State visited.
Every penal institution visited.

Clinic summary, June 1, 1919, to June 1, 1921: —	
Total new patients,	14,560
Total treatments,	259,797
Average new patients per month,	$606\frac{3}{4}$
Average total patients per month,	$5{,}686\frac{13}{24}$

No outline of venereal disease control work would be complete without reference to the United States Public Health Service and the Interdepartmental Social Hygiene Board. The Federal government has provided funds to be disbursed through the Interdepartmental Social Hygiene Board to the several States to assist in the campaign and apportioned on the basis of population. This money, provided by the Chamberlain-Kahn bill, gave to Massachusetts for each of the two years from July 1, 1918, to July 1, 1919, and July 1, 1919, to July 1, 1920, $36,000. The last congress cut the estimate approximately 40 per cent. This will necessitate a curtailment of certain expenditures, but apparently will not seriously hamper the general program for the present, at least. Boards of health and health officers should, however, seriously consider the possibility and certain ultimate probability of meeting the provisions of General Laws, chapter 111, section 117: —

> Each city shall provide for treatment, either in a hospital or as out patients, of indigent persons suffering from contagious or infectious venereal diseases.

The present status of venereal disease control measures indicates the necessity of continuing the work, and in the natural course of events the local health authorities must assume responsibility for their communities.

NOTES FROM THE BACTERIOLOGICAL LABORATORY.

By E. A. Beckler, S.B., Bacteriologist, Massachusetts Department of Public Health.

THE function of the Bacteriological Laboratory is twofold, — to assist physicians to make diagnoses and to detect carriers of certain disease germs.

It is very apparent that the physicians of Massachusetts are using the laboratory more each year. However, many reported cases of communicable diseases are not confirmed by the laboratory, although laboratory tests are available. In such cases the physicians rely entirely upon the clinical signs, although it would appear as if diagnosis might be more accurate in certain diseases if confirmed by the laboratory. Occasionally a case diagnosed by the physician as typhoid fever turns out to be tuberculosis, or a so-called malaria is actually typhoid fever. On the other hand, the laboratory cannot be expected to make the diagnosis for the physician. This is often expected, although very meager information may be sent with the specimen. A positive Widal reaction does not necessarily mean that the patient has typhoid fever. He may have had antityphoid inoculation or a previous attack of typhoid fever. Rarely some other condition causes a positive Widal reaction for typhoid fever, although this is not common enough to discredit the test. A negative Widal does not mean absolutely that the patient has not typhoid. It may be too early for a positive reaction. Occasionally the laboratory is asked to find out from a specimen of sputum whether or not a patient has pneumonia. Of course, this is impossible, because pneumococci may be present in normal mouths. Determination of the type of pneumococcus in the sputum has helped to differentiate mouth pneumococci from the fixed types usually found in sputa from cases of lobar pneumonia, but a fixed type may be present in a normal mouth. The laboratory should be asked to determine the type of pneumococcus only when the clinical diagnosis is pneumonia and the attending physician intends to employ serum therapy if the etiologic agent is a type I pneumococcus. Otherwise, type determination is a waste of time and money for the laboratory, and is of no particular value to the physician. Absence of pneumococci from a sputum does not argue against the disease being pneumonia, because pneumonia may be caused by other organisms, for example, streptococci. In the diagnosis of diphtheria, where the laboratory, perhaps, does its most valuable work, mistakes may occur. A positive throat culture does not absolutely prove that the patient has diphtheria, although it usually means that, or that the patient is a carrier of diphtheria bacilli. For all practical purposes, if sick he should be treated as a case. It is in the negatives that physicians place too much faith. For that reason this Department always stamps all reports of negative cultures, "If your clinical signs are of diphtheria, do not be satisfied with one negative." There are many reasons why a culture from a case of diphtheria may be negative; a local application of an antiseptic may have been made previous to taking the culture; the swab may have been applied to the wrong spot; or other bacteria may have overgrown the diphtheria bacilli. There is no excuse for not giving antitoxin because the first culture was negative. In this laboratory, all swabs received for diagnosis are examined after the culture has been made from them. By this swab examination 60 per cent of the positives are reported within a short time after receipt. The cultures which are made and incubated are examined at 1 P.M. and 6 P.M. of the day of receipt, and again on the following morning. Approximately 91 per cent of the positive cultures are reported the day they are received, but, on account of those that are slow, it is necessary to incubate all that are negative on the day of receipt for fourteen hours or more. It is difficult to make physicians understand why negative and release cultures cannot be reported on the day they are received. The laboratory is as interested as any one in the prompt diagnosis of disease, and its staff can be depended upon to send reports as early as is consistent with accuracy. Every case is "an important case" to the laboratory worker.

The bacteriological laboratory could be used to a greater extent than it is for the detection of diphtheria carriers among school children and for the detection of typhoid carriers. Experience has taught us that diphtheria carriers are not very numerous, and that the detection of the comparatively few among school children lessens the number of cases occurring in the schools. Now that typhoid fever is so much less common than it was, it is somewhat easier to trace the source of infection in each case. When investigations have been made it has been found, sometimes, that a member of the household is a typhoid carrier.

Finally, there should be some co-operation between local boards of health and this laboratory. If they have no laboratory of their own this Department is very glad to do their bacteriological work and to supply them with containers for specimens. Since this Department has to send containers throughout the State it cannot permit any board of health to accumulate unused outfits and deprive others of their use. There are enough for all if they are reasonably used. Moreover, it should be remembered that they are the property of the laboratory.

The following examinations are made at the Bacteriological Laboratory, Room 527, State House :—

Throat and nose cultures for diphtheria bacilli.
Throat cultures for hemolytic streptococci.
Widal test for typhoid fever, blood. (Rarely positive before fifth day.)
Culture test for typhoid fever, blood. (Of value only in first five days.)
Culture test for typhoid fever, stools, urine. (Probable carrier cases and convalescents.)
Sputum for tubercle bacilli.
Urine for tubercle bacilli.
Sputum for pneumococcus type determination.
Pus smears for gonococci.
Blood films for malarial parasites.
Spinal fluid for meningococci and other organisms.
Cultures for anthrax bacilli.

The Wassermann test for syphilis is *not* made at this laboratory but at the State Wassermann Laboratory, Harvard Medical School, Longwood Avenue, Boston.

RÉSUMÉ OF COMMUNICABLE DISEASES.

JUNE, 1921.

General Prevalence.

There were 6,131 cases of communicable diseases reported for June as compared with 7,372 for May. This is the smallest number reported so far this year. Two diseases, whooping cough and pulmonary tuberculosis, showed increased reported incidence.

Diphtheria. — The total number of cases reported for June was 624, a slight decrease from the previous month.

German measles has shown a substantial decrease, total cases for June being 83 as compared with 128 for May.

Gonorrhea and syphilis. — Gonorrhea was reported in about the usual number, while syphilis showed a decrease, with 185 cases for June as compared with 217 for May.

Measles has shown a substantial decrease, total for June, 1,635, as compared with 2,449 for May.

Lobar pneumonia. — There were 291 cases reported for June. This is the smallest number so far this year.

Scarlet fever. — There were 492 cases reported for June as against 649 for May. This is the smallest reported incidence since September, 1920.

Pulmonary tuberculosis, with 649 reported cases for June, reached the highest mark of any month this year. The total for May was 549.

Typhoid fever was reported in 59 instances. These were mostly scattered cases.

Whooping cough showed a slight increase, with 509 reported cases as compared with 487 for May.

Rare Diseases.

Anterior poliomyelitis was reported from Boston, 1; Fall River, 1; Newton, 1; Salem, 1; total, 4.

Anthrax was reported from Lynn, 1; Worcester, 1; total, 2.

Dog bite requiring antirabic treatment was reported from Brookline, 3; Dighton, 1; Holbrook, 1; Lawrence, 1; Lowell, 5; Plainville, 1; Somerset, 1; total, 13.

Encephalitis lethargica was reported from Belmont, 1; Lawrence, 1; Somerset, 1; Springfield, 1; total, 4.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Clinton, 1; Everett, 1; Palmer, 1; Peabody, 1; Salem, 1; Worcester, 1; total, 9.

Malaria was reported from Boston, 4; Fitchburg, 1; Milford, 2; total, 7.

Pellagra was reported from Boston, 1.

Septic sore throat was reported from Belmont, 1; Boston, 5; Saugus, 2; Somerville, 1; total, 9.

Tetanus was reported from Peabody, 1; Salem, 1; Worcester, 1; total, 3.

Trachoma was reported from Boston, 2; Lawrence, 1; Lowell, 2; Medford, 1; Newton, 1; Somerville, 1; total, 8.

Distribution.

All Communicable Diseases.

	June, **1921.**	June, **1920.**
Total cases (all causes),	6,131	10,870
Case rate per 100,000 population,	157.1	280.9

Certain Prevalent Diseases.

	June, **1921.**	June, **1920.**	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Diphtheria: —			Boston, (175) 214 Cambridge, (22) 34 Danvers, (1) 5 Lowell, (9) 23 Medford, (5) 20 Winchendon, (0) 16
Total cases,	624	586	
Case rate per 100,000 population,	16.0	15.1	
Measles: —			Barnstable, (6) 45 Hingham, (1) 32 Quincy, (12) 157 Lynn, (35) 129 Wakefield, (0) 34 Winthrop, (2) 14 Andover, (7) 27 Arlington, (3) 18 Westford, (2) 20 Hatfield, (1) 15 West Springfield, (3) 47
Total cases,	1,635	5,288	
Case rate per 100,000 population,	41.9	136.7	
Scarlet fever: —			Attleboro, (2) 8 Plymouth, (4) 21 Boston, (95) 142 Braintree, (3) 8 Haverhill, (3) 19
Total cases,	492	715	
Case rate per 100,000 population,	12.6	18.5	
Typhoid fever: —			Waltham, (0) 9
Total cases,	59	63	
Case rate per 100,000 population,	1.5	1.6	
Whooping cough: —			Fall River, (15) 43 Middleborough, (3) 9 New Bedford, (5) 15 Avon, (0) 25 Brookline, (4) 13 Newton, (9) 29 Pittsfield, (5) 19
Total cases,	509	975	
Case rate per 100,000 population,	13.0	20.0	
Tuberculosis, pulmonary: —			
Total cases,	649	640	
Case rate per 100,000 population,	16.6	16.5	
Tuberculosis, other forms: —			
Total cases,	96	77	
Case rate per 100,000 population,	2.5	2.0	

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of May and June, 1921, samples were collected in 92 cities and towns.

There were 1,259 samples of milk examined, of which 372 were below standard, 26 samples had the cream removed, 2 samples were of skimmed milk below the legal standard, and 11 samples contained added water.

There were 512 samples of food examined, of which 150 were adulterated. These consisted of 43 samples of butter which were rancid, upon which requests for storage extension were made; 1 sample of coffee substitute which contained a cereal mixture and was misbranded; 12 samples of grape juice which contained cane sugar and coloring; 1 sample of maple sugar which contained cane sugar; 4 samples of sausage which contained starch in excess of 2 per cent; 58 samples of olive oil which contained cottonseed oil; and 31 samples of soft drinks which contained saccharine.

There were 7 samples of drugs examined, of which 3 were adulterated. These consisted of 3 samples of magnesium citrate which contained sulphate.

The Department of Public Welfare submitted 2 samples of soap for analyses.

There were 46 hearings held and 11 warnings issued pertaining to violations of the food and drug laws.

The police departments submitted 663 samples of liquor for examination, 564 of which were above 2.75 per cent in alcohol. The police departments also submitted 34 samples of poisons for examination, 17 of which were morphine, 12 of cocaine, 1 of strychnine, 1 of paris green, and 3 samples were examined for poison with negative results.

There were 50 convictions for violations of the law, $985 in fines being imposed.

John Burke of Westwood; Almon F. Boyden and Joseph Siegmund of Walpole; Tony Dicenso of Medway; Michael Mozara of Millis; G. C. Lewis Fisher of Peabody; and Albert L. Goss of West Windham, N. H., were all convicted for violations of the milk laws.

Andrew Balkus of Lynn; Gideon Maguy of Fitchburg; Morris Stampel of Taunton; Myer Fomberstein of Fall River; John Chmielnicki of South Boston; Anthony Lumenello, John Gracia, Carl Vonbank, George Vonbank, John M. Barboza, Joseph Neves, Nathan E. Shapiro, and Arthur Archiambault, all of New Bedford; John Melinsky of Cambridge; Peter Armenis of Boston on 2 cases; Joseph DeMauro, Cirino Campione, and Jacob Puzine, all of Lawrence; and Max Liofsky of Springfield were all convicted for violations of the food laws. John Chmielnicki of South Boston; Peter Armenis of Boston on 2 cases; Max Liofsky of Springfield; and Joseph DeMauro of Lawrence all appealed their cases.

The following persons were in court for violations of the soft drink laws: Tommaso Catacchio, James H. Kelley, Peter Lozoraitis, Michael A. Quitadamo, Harris Robbins, Sylvester Roscoe, Vincent Stanieri, Royal Bottling Company, Inc., and Wilben Bottling Company, all of Worcester. Each case was filed without plea.

John Chmielnicki of South Boston, Peter Armenis of Boston on 2 cases, and Alfio Marcaroni of Lawrence were all convicted for misbranding articles of food. Peter Armenis of Boston, on 2 cases, and John Chmielnicki of South Boston appealed their cases.

James Agnas, Costos Bidsacos, Costos Demetropoulos, Daniel Kaleos and Andrew Nicolaon, all of Springfield, were convicted for the misuse of milk bottles.

Rudolph Smanai of Springfield was convicted for a violation of the drug laws. He appealed the case.

Philip Albert, Morris Cohen, William Fredette and Simon Margolis, all of New Bedford, were convicted for violations of the slaughtering laws.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers :—

Watered milk was obtained as follows: 2 samples each, produced by Patrick Mulvey and Hugh McGuire, both of Lexington.

Olive oil which contained cottonseed oil was obtained as follows: 18 samples, sold by Moustos & Cotsis of Boston; 3 samples, sold by Santi Leonardi of Lawrence; 2 samples each, sold by J. G. Moustos and G. Armenis, both of Boston; Alfio Marcaroni of Lawrence; Antonio Buto of New Bedford; and Carlo Macarelli of Cambridge; 1 sample each, sold by M. C. Mario of Haverhill; Joseph Hendricks, Ferrvia Brothers, and Louis Israel, all of New Bedford; Frank Santuccio of South Lawrence; Peter Armenis of Boston; Italy Importing Company and Messina Importing Company, both of New York; and John Bighi of Springfield.

Grape juice which contained cane sugar and coloring was obtained as follows: 12 samples, manufactured by the Fruit Products Trust of Boston.

One sample of coffee substitute which contained a cereal mixture and was misbranded was produced by the Delisco Corporation, Ltd., of Boston.

One sample of sausage which contained starch in excess of 2 per cent was produced by the New England Sausage Company of New Bedford.

Soft drinks which contained saccharine were obtained as follows: 5 samples, produced by the Fitchburg Bottling Company of Fitchburg; 4 samples, produced by the Apollo Spring Works of Cambridge; 3 samples each, produced by the Neves Soda Water Company and the A. Luminello Bottling Company, both of New Bedford; 2 samples, produced by the Cambridge Bottling Company of Cambridge; and 1 sample each, produced by Morris Tinkoll and Charles Kline, both of Fall River; Columbia Bottling Company and Tripoli Bottling Company, both of Lawrence; Max Liofsky and the Star Bottling Company, both of Springfield; Nathan Roscoe, John M. Barboza and the Friendship Bottling Company, all of New Bedford; National Bottling Company of Cambridge; and E. Sofer of Peabody.

There were 13 confiscations made, consisting of 1,016½ pounds of decomposed cheese, 35 pounds of tainted beef, 3,164 pounds of decomposed beef, 178 pounds of decomposed pork, 300 pounds of tainted veal, and 72 pounds of immature veal.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of April, 1921: 7,830,120 dozens of case eggs, 299,526 pounds of broken-out eggs, 355,939 pounds of butter, 508,805 pounds of poultry, 4,106,625 pounds of fresh meat and fresh meat products, and 1,168,189 pounds of fresh food fish.

There was on hand May 1, 1921, 10,070,580 dozens of case eggs, 394,751 pounds of broken-out eggs, 1,006,544 pounds of butter, 3,726,620 pounds of poultry, 25,874,382½ pounds of fresh meat and fresh meat products, and 5,464,695 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of May, 1921: 5,884,920 dozens of case eggs, 447,191 pounds of broken-out eggs, 1,971,153 pounds of butter, 471,925 pounds of poultry, 5,814,562 pounds of fresh meat and fresh meat products, and 3,293,525 pounds of fresh food fish.

There was on hand July 1, 1921, 15,656,070 dozens of case eggs, 496,052 pounds of broken-out eggs, 2,188,522 pounds of butter, 2,731,054 pounds of poultry, 24,916,088 pounds of fresh meat and fresh meat products, and 7,405,175 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, Eugene R. Kelley, M.D.

Public Health Council.

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Division of Hygiene,	Director, Merrill E. Champion, M.D.
Division of Tuberculosis,	Director, Sumner H. Remick, M.D.[1]

State District Health Officers.

The Southeastern District,	Charles W. Milliken, M.D., New Bedford.
The Eastern District,	George T. O'Donnell, M.D., Boston.
The Northeastern District,	Lyman A. Jones, M.D., Swampscott.
The North Midland District,	Charles E. Simpson, M.D., Lowell.
The Worcester County District,	Francis A. Finnegan, M.D., Worcester.
The Connecticut Valley District,	Harold E. Miner, M.D., Springfield.
The Berkshire District,	Oscar A. Dudley, M.D., Pittsfield.

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[1] Appointment effective Sept. 1, 1921.

THE COMMONHEALTH

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CANCER NUMBER

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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Publication of this Document approved by the Supervisor of Administration.

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Cancer is a problem of the first magnitude, and, as the years go by, the urgency of the problem increases, since its death rate is steadily increasing in this country.

In the hope that additional impetus may be given to efforts in this State to inform the public as to the importance of preventive measures against cancer, this issue of the Commonhealth is devoted to this subject. It was prepared in co-operation with the Massachusetts Committee of the American Society for the Control of Cancer, certain members of which have contributed to its pages.

The first article in this number — What Every One should know about Cancer — is one of the publications of the American Society for the Control of Cancer, and was prepared by a special committee of the society.

WHAT EVERY ONE SHOULD KNOW ABOUT CANCER.

WHY has there been so much talk about cancer of late years? There are several reasons. The disease is very frequent, causing 1 death out of every 10 after the age of forty,[1] and moreover, it is apparently steadily increasing throughout the world. Familiar to the earliest physicians, it has persisted through the ages of medical progress, but while an immense fund of knowledge has been accumulated, there is much still to be learned. Only too often the utmost skill of modern medical science fails to save the patient, and people have therefore come to dread it as a hopeless and incurable affliction. Fortunately the facts warrant a more hopeful view, and a systematic effort is now being made to tell people generally what is known about cancer, and particularly to describe the warning signs, so that this insidious disease may be more frequently discovered and successfully treated in the early stages while a cure is still possible.

In the two years and a half that the United States was engaged in the great war, about 80,000 soldiers were killed or died of disease. During the same time cancer caused the death of 180,000 people in this country. While these soldiers who made the supreme sacrifice did not die in vain, a large proportion of the deaths from cancer represents a needless waste of human life.

THE FREQUENCY AND THE INCREASE OF CANCER.

Cancer is indeed one of the most important causes of death. In the continental United States the annual mortality from all forms of the disease is estimated at about 90,000. It is probable that if all these deaths were correctly ascertained and certified, the total would reach 100,000 for the year 1920. The mortality rate for cancer is somewhat below 85 per 100,000 per annum. As a group of diseases, cancer ranks with pneumonia, tuberculosis and kidney disease as one of the five or six causes of death which stand second only to heart disease in the Census Bureau's annual report for 1917.

The mortality from cancer is apparently on the increase throughout all civilized countries. In the United States the annual increase in the cancer death rate is approximately 2½ per cent. It is almost exclusively a disease of adult life, for of the total number of deaths from cancer at all ages, about 95 per cent occur after the age of thirty-five is reached.

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[1] According to latest report of the United States Census Bureau.

Cancer appears in a variety of forms, affecting practically every organ or part of the body. The most important forms for both sexes is cancer of the stomach, which, including the liver, accounts for about 35,000 deaths per annum. The number of deaths from cancer of the female generative organs is about 13,000 per annum; from cancer of the female breast, about 8,500 (a very high frequency, for it occurs in only half the population); from cancer of the mouth and tongue, about 3,500; from cancer of the peritoneum, intestines and rectum combined, about 12,000; from cancer of the skin, about 3,500; and from cancer of other organs or parts, about 14,500.

Cancer is especially frequent among adult women. Of all deaths over the age of forty, 1 in 13 among men is due to this disease, but among women over this age 1 out of every 8 is fatally attacked. Between the ages of thirty-five and forty-five three times as many women as men die of cancer; between forty-five and fifty-five twice as many. This excessive mortality among women is apparently due to cancer of the breast and the special organs of generation. Yet these forms of the disease, like others, are usually curable by competent treatment in the early stages.

Excluding cancer of the breast and of the female generative organs the relative frequency of all other forms of cancer combined is about the same in the two sexes. The civilized and particularly the white races are more liable to cancer than native races, such as the North American Indians or the Orientals. Cancer of the uterus, however, is apparently more common among negro women in this country than among white women. Cancer of the breast and cancer of the ovary are more frequent among the unmarried than among the married; in contrast, cancer of the uterus is more common among married than among single women.

THE NEED FOR EDUCATING THE PUBLIC.

But, quite aside from statistics, the disease occurs so frequently that there is hardly a person who has not known of its occurrence among his or her immediate relatives or friends. Another reason for interest in the subject of cancer is that after the disease reaches a certain stage it is incurable and invariably fatal. It is important to remember, however, that if it is discovered in an earlier stage, the cancer can be removed with a very great probability of a permanent cure. This fact does not seem to be generally recognized, and it is for this reason that physicians, health officers, and others who are interested in public health and welfare work are so anxious to show that much more than is being accomplished at present can be done to cure cancer in its early stages. Even though scientific knowledge of the origin of cancer is still in many points imperfect, the practical knowledge of how to arrest its onset and save the patient in individual cases is already in many respects satisfactory. Some physicians believe that possibly three-quarters of the deaths from cancer, and all the attendant suffering, could be prevented if all members of the medical and nursing professions as well as the public were adequately instructed in what they each ought to know about this disease.

The campaign of education in regard to tuberculosis which has been conducted for the last twenty years in America has resulted in a very great diminution in the number of deaths from this disease, largely because people have been taught not to delay in consulting a physician. It is perfectly possible to produce the same results in cancer, if all patients suffering from the disease could be taken to a physician and could have the cancer removed while still in an early stage. Practically without exception cancer is at first a local disease; that is, it begins in a little spot all by itself, and for a long time may have no effect on the rest of the body. This means that in theory it would always be easily curable if the first spot could be recognized and removed in time. In practice it is difficult and in some cases impossible for even the physician to recognize it soon enough. The second practical difficulty is to get the patient to consult a physician immediately after he or she recognizes that something is wrong. If all cases that came to treatment were early cases a great many more patients would be cured. The problem, then, is to get the case into the hands of a competent medical advisor while it is still in the early and curable stage, or even more fortunately, while the patient exhibits merely those conditions which are now widely recognized as predisposing factors in the causation of cancer. No matter how great his skill or how modern his knowledge the physician cannot help a patient who does not come to him. People must therefore be taught to recognize the disease when it begins, and to realize that early surgical removal, or the application of other modern remedies which are sometimes useful in competent hands, is the only hope of cure, but that the chance for cure is very great if the patient is wise enough to act promptly.

WHY DO PEOPLE DELAY GOING TO THE PHYSICIAN?

Unfortunately, statistics prove that the average cancer patient, after discovering something wrong, waits weeks, months, even a year or more before obtaining medical advice or treatment. Why is this?

Probably one reason is that the patients do not realize that cancer starts from such trifling beginnings, or if they do have a suspicion that they may have cancer, they ignore or conceal it either through fatalistic despair or false and fatal modesty. The old-fashioned idea that cancer is a "blood disease" still exerts a wide and baleful influence, and must be overcome by spreading the modern knowledge that practically all forms of malignant growths are at first confined strictly to the locality in which they originate. The thought that cancer may be hereditary also makes one infected with this disease desire to conceal it, but heredity has not been proved to be an important factor in the development of the common types of cancer.

Above all causes of delay is the unfortunate absence of pain in the beginning. Usually there is no pain to force attention while there is still time enough to apply the remedy, and by the time the symptoms are so marked as to alarm the victim it may be too late, for the invading cancer will probably have obtained a foothold from which it cannot easily be dislodged. If, indeed, the early symptoms of cancer caused half as much trouble as a toothache many more lives would be saved because the patient would be driven to consult a physician in time. The fact that people generally are not familiar with the symptoms of cancer, other than pain, makes it difficult to increase the number of cures, for unless prepared to recognize the signs that mark the beginning of cancer people are helplessly open to its ravages. A little knowledge in this case is not dangerous; it is essential. It is the purpose of this handbook to give the essential facts that should be familiar to every one.

How Cancer begins.

Cancer is a very curious disease which is due to the running wild of certain parts of the body tissue; for example, a few cells[1] in the breast or in the liver or in some other organ grow beyond the natural limit and invade the surrounding tissues; then we have a cancer. This cancer often does not give any notice of its presence until a long time after the trouble has begun, because the cells composing it are the same, or nearly the same, as the cells from which they started, and therefore the body does not recognize the fact that a cancer is growing until it becomes of considerable size. The origin of cancer has been aptly compared to the situation in a family seated at a dinner table when a supposed relative arrives and is given a place, —

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[1] The body is made up of these small elements called cells, which when packed together form the organs of the body. The cells are different for each organ; those of which the skin are composed are entirely unlike those which make the liver or brain.

the newcomer eating all the food and finally the family itself. This is just what a cancer does. It starts very quietly, is very small at first, but gradually grows and destroys the very tissues that feed it, until ultimately it kills its host by the destruction of some important part of the body. But in such a case, the cells of the body itself are the parasites, there being no external parasite, so far as we know, introduced from the outside to cause the cancer.

Cancer not a Germ Disease.

Considering that cancer is such a formidable disease, it is satisfying to know that certain fears about it are unnecessary. In the first place, it is quite unlike diseases due to germs, of which so much has been learned in the last thirty years, for no germ which is capable of causing cancer in human beings or in animals has been found.

Cancer not Contagious.

Cancer is, therefore, not contagious, and there is no danger in treating or in dressing a case. Ordinary cleanliness, however, requires that the soiled dressing or the discharges from a patient suffering from cancer shall be carefully collected and disinfected and the dressings burned — not because there is any danger of becoming infected with cancer, but because the discharges and dressings contain germs such as those which cause boils, erysipelas and other skin inflammations.

As cancer is not contagious there is no reason to believe the stories so often told of "cancer houses," "cancer villages" or "cancer belts." The occurrence year after year of a large number of cases of cancer in a single house can usually be shown to be due to the fact that the house has been occupied by old people; since cancer is a disease of old age there will naturally be more cases of the disease in such a house than in one which has been occupied by younger people. Thus, also, "cancer villages" will usually be found to be small country villages from which most of the young people have gone to the large neighboring manufacturing towns in order to obtain work, so that only the older people have been left. As these old people are very much more likely to develop cancer, there is an apparent increase in the number of cases in the village. This has been shown to be true in some of the New England States, especially Vermont and New Hampshire. Hence these two States have the highest cancer rate of any in the country, while the western States, which are largely populated by younger persons, have a very low cancer rate. While, therefore, the general percentage of cancer in these New England States is increased, it will be found on examining the statistics that there is no increase in the number of cases which have occurred at the age, say, of sixty, over the number which would usually occur at the same age in the general population of the whole country elsewhere.

In a word, the possibility of transferring cancer from one person to another by direct contact should be practically disregarded. In all the thousands of recorded operations for cancer there is no report of a case acquired from a patient by any surgeon or nurse. Cruel neglect of some patients has been known to occur because of groundless fear of "catching" the disease. This is doubly unfortunate, since cancer in the incurable stages calls for the most patient and devoted care of the sufferer.

CANCER NOT HEREDITARY.

Cancer is not hereditary, although much has been said and written about experiments with certain strains of white mice which showed that by inbreeding the occurrence of cancer in these animals was much increased. While there is no question that this is a fact, yet the increase can be obtained only in certain strains of white mice, not in all varieties, and has never been observed in white rats, guinea pigs, rabbits, dogs or other animals in which cancer occurs. The breeding conditions of the strains of mice above mentioned, about which so much has been printed in the newspapers, are so different from those which occur in the human race that no comparison is possible. Among the mice kept under observation, every parent either had cancer or came from a cancerous ancestor, and this is manifestly impossible in the human race. Therefore there is no reason to worry because one member of a family has suffered from the disease. It does not at all follow that any other member of the family will have it. It has been shown, in fact, that according to the laws of chance if a certain number of cases of cancer are to be expected in a community, one family will naturally have two or three cases while other families will have none, and this is due purely to coincidence. In a family the members of which tend to be very long-lived, more cases of cancer will occur than in one in which the members die young; this is not because cancer is hereditary, but because it is predominantly a disease of middle and later life.

Even those students of heredity who hold the strongest views on the subject do not believe that cancer itself is inherited, but merely that a liability to the disease is passed on. While every one should know the symptoms of this disease, people who have had much cancer in their families should take particular pains to inform themselves carefully about the disease and its prevention.

It is reassuring also to remember that life insurance companies pay no attention to a history of "cancer in the family" in determining whether or not a person is a good risk. Indeed, exceptionally careful studies of life insurance records have shown that there is no ground for apprehension even if both parents died of cancer.

NOT ALL FORMS OF CANCER ARE INCREASING IN FREQUENCY.

Even the statistics showing the increase of cancer must be considered in the light of all the facts, and should not be seized upon as an occasion for extravagant and alarming statements. While the improvement in conditions of living has prolonged life ten years on an average, during the last century, this added length of life apparently increased the number of cases of cancer, since there are more people who reach the cancer age than formerly. This gives more cases of cancer in the population as a whole, though the relative portion per age group may not be increased. Statistics show that there has been but little increase, for example, in cases of cancer of the skin, while the occurrence of cancer of the internal organs has apparently become much more frequent. This latter observation may be due in part to the fact that internal cancer is now more easily diagnosed, owing to the use of chemical tests and of the X-ray which frequently reveal unsuspected cancer from which the patient might otherwise have died before the disease was discovered, and in part, also, to the frequency of operations which reveal cancers of which we could not otherwise be certain.

PREDISPOSING CONDITIONS.

When we state that we do not know the cause of cancer we mean that we do not yet know just what causes a small cell or group of cells to change their nature and take on the extraordinary power of growth which is the fundamental characteristic of this disease. But nevertheless, a great deal is known about the circumstances concerning these new growths, — when and where they take place and what conditions seem to favor the process. In other words, even though we do not know the cause of cancer, we do know a good deal about how it occurs and what is apt to precede it. For instance, cancer frequently begins in moles or pigmented warts which are irritated by the clothes or are made to bleed and are kept sore by repeated injury of any sort. Such pigmented warts and moles are perfectly harmless at first, and become dangerous only after they have been irritated in some way for a long time, especially if the person is of the cancer age; that is, above forty-five. It is wise, therefore, to have such moles or warts removed if located so that they are liable to be rubbed or injured. It has also been found that cancer frequently develops in the scar of an old burn, or in places where there is a chronic ulcer, as on the lip, tongue or leg, and care should be taken to see that such ulcers are healed as quickly as possible. Ulcers on the tongue and cheek frequently result from a scratch from a poor filling or from the sharp point of a decayed tooth. A dentist should be consulted if such an ulcer does not heal within a few days, in order that the filling may receive proper attention or the point of the tooth be filed off. Smokers should be particularly careful about any sore on the lip or tongue. Such sores are commonly found in persons who use a pipe in such a way that the tongue or lips are chronically irritated by the hot stem, or who hold cigars in such a manner that the hot smoke continually strikes one spot. For this reason cancer of the lip and tongue is very common in men, and is almost never seen in women.

All these irritants which have just been mentioned do not of themselves directly cause cancer; they give cancer a chance to begin. If a man past middle life does not smoke heavily, cares for his teeth and keeps his mouth clean, he is very much less likely to have cancer than one who does not follow the simple laws of mouth hygiene. Syphilis also predisposes to cancer of the mouth.

Internal cancer in an early stage is very difficult to determine, because tumors, when they first start, cannot be discovered except by accident. For instance, ulcer of the stomach is sometimes a starting point for cancer, since the ulcer may possibly turn into cancer if not cured by proper medical or surgical treatment. So, too, cancer of the lower bowel is frequently preceded by chronic inflammation. Therefore persons who think they have chronic dysentery, ulceration of the bowel or bleeding piles should consult a physician, to have these ailments properly diagnosed, and thus make sure that they are not due to beginning cancer.

Any woman who notices a lump in the breast should at once consult a physician. It is very much better to be told that the lump is harmless and need not be removed than to wait too long, only to find that it has already developed into a cancer.

Early cancers of the womb give evidence of their presence by persistent bleeding continuing between the periods. The form of cancer of the womb frequently starts in lacerations, following the birth of a child. Such tears should be carefully attended to by the physician at the time when they can be most easily remedied; that is, shortly after delivery.

Fibroid tumors of the womb very rarely turn into cancer, but should be under the observation of a competent physician.

SYMPTOMS OF CANCER.

Unfortunately the very smallest cancers give no symptoms unless they are on the skin or lip or tongue or elsewhere on the surface of the body, in which situations the earliest diagnoses can be made. Cancers the size of a pea or but little larger are often diagnosed and removed by a surgeon with an assured favorable result, if the operation has been properly done. In the stomach and internal organs, however, the cancer does not give rise to symptoms until it is quite large, and it is important, therefore, for any one who has any disturbance of the stomach or intestines, loss of weight, or anemia, to go at once to a surgeon, because by modern chemical methods and by the use of the X-ray, a diagnosis can often be made long before the cancer can be felt or seen.

One of the last symptoms of cancer is pain, which is caused by the growth pressing on the nerves as it spreads out through the tissues. When a cancer gives a great deal of pain it is usually beyond operation. Bleeding is a common result of cancer of the intestines and of cancer of the womb, and is one of the most important symptoms.

Every one should know, however, that when a lump appears anywhere on the body, a physician should be seen immediately. The lump may prove to be an abscess or a benign growth, for the early symptoms of cancer are not very different from the symptoms caused by harmless tumors. On the other hand, a mere lump may prove to be a cancer, and then, if it has been discovered early enough, it can be cured. Unfortunately, cancer attacks not only those who are in feeble health, but also, and with equal frequency, those who are strong and healthy and have never suffered from any other disease. For this reason it is especially important that healthy people should consult a physician if any sudden change in their well-being takes place, and particularly if there is any digestive disturbance or disorder of the bowels, for the stomach and intestines are frequent sites of cancer.

KINDS OF CANCER.

There are many kinds of cancer, and each kind acts differently and spreads in its own way through the body. Certain forms which arise in glands, such as the breast, are called *carcinoma,* and these spread slowly to places where there are small nodules of tissues, called lymph nodes, in which the cancer cells collect, forming there secondary lumps or metastasis, as the physician terms them. The true carcinoma does not often get into the blood vessels, and therefore it remains localized for a very considerable time, so that the surgeon has an opportunity to remove it if the diagnosis is made early.

Another kind of cancer, called by physicians *sarcoma,* frequently spreads to the blood vessels and consequently is much more difficult to cure, because this spreading takes place very early in the course of the disease, and the cells are swept all over the body, starting new little tumors where they are deposited.

While cancer grows through the very tissues which surround it, it does not have roots, as the advertising "cancer specialists" state. What are called roots are more frequently blood vessels leading from the cancer, or bits of fibrous tissue; thus when a charlatan assures a patient that he takes a cancer out "by the roots," he talks nonsense.

Some cancers grow very slowly. Certain cancers may remain for ten or twenty years without spreading to any extent and without forming secondary growths elsewhere. Others grow very rapidly and are fatal within a few months. Many cancers remain localized for some time before they really start to spread out in the tissues, and if discovered and cut out during the local stage, the patient can be cured. In the following pages some of the principal forms of cancer are considered in fuller detail.

Cancer of the Breast.

It is estimated that there are upward of 8,000 deaths in the United States yearly from cancer of the breast, the majority of which are needless and preventable.

This form of cancer more often attacks women over thirty-five, though now and then it is seen in younger women. It is distinctly curable when it is removed early. The chief symptom in the beginning is a lump or thickening anywhere in the breast, or a thin discharge from the nipple and dimpling of the skin over the tumor.

No woman who has a lump in her breast, regardless of how small it may be, should fail to go at once to a competent surgeon or physician. It matters not where this lump may be, for cancer may start in any part of the breast or in the nipple itself. A woman should further seek prompt advice on the first appearance of a discharge from the nipple, for if she waits for the late symptoms — pain, loss of strength and weight, drawing in of the nipple and increase in size of the lump — the possibility of a successful operation is practically nil.

The early removal of such part of the breast as the surgeon may decide to be wise is the only safe and curative procedure. A favorable result in these early cases is likely to be a permanent one; delay usually proves fatal. Not all lumps in a woman's breast are cancerous, but only competent surgeons are able to decide on this point. The woman herself never knows. Cancer of the breast is not painful in its early stages, but the early stage is the curative period. A small lump which is not cancerous may change into cancer. Therefore every lump, no matter how small, should be removed. If this were always done a large percentage of cases could be permanently cured.

Here is a typical story of successful treatment, so familiar to the physician but so often concealed from friends and from the public: —

A woman discovered a lump near the nipple of her left breast. It was not sore, it was freely movable and no larger than a pea. This woman went at once to a competent surgeon who immediately performed a suitable operation. The microscope showed the lump to be a beginning cancer. There was no cancer tissue to be found elsewhere, and the growth had not at that time gone beyond the little lump itself. This was fifteen years ago, and the woman has remained cured and in all human probability will stay so.

Contrast this story with the following: —

A woman consulted a physician for some trouble in the breast. Examination showed a widespread cancer too far advanced to offer any hope of cure. On inquiry the woman admitted that she had noticed a little lump in the breast two years before. Asked why she did not show it to her physician at that time she replied, "I was afraid it might be a cancer."

Early operations are without danger to life.

Delay results in death. Early recognition and early operation often result in permanent cure.

CANCER OF THE UTERUS.

In women, the uterus or womb is, next to the stomach, the most frequent site of the disease. In many ways it is the most dreaded form of this disease, for it attacks almost exclusively wives and mothers, at the most useful period of their lives. We are thus doubly impressed with the importance of controlling this type. A further special interest in cancer of the uterus is due to the mental and physical suffering that is attendant upon cancer in this organ on account of its proximity to the bladder and bowel. It also gives rise to the most distressing and offensive discharges. It is not to be wondered at, therefore, that the present educational movement for the early recognition of cancer began among those whose lot it was to treat cancer of the womb.

Uterine cancer occurs with greater frequency among women who have had children, so that it is probably true that the injuries and inflammation following childbirth are a causative factor in the disease, but we should not exaggerate this point. The fear of cancer should never keep any one from motherhood. The evidence we have at present, however, justifies us in recommending that women who have deep tears or pronounced irritation about the neck of the uterus should have these conditions corrected, and should be kept under observation during the years between thirty-five and fifty.

The first symptom of cancer of the womb is, in the vast majority of cases, an irregular blood-tinged watery discharge. No pain is present nor can any lumps be felt at this time. Of course it can be readily understood that this is a symptom that may also be due to many harmless conditions, especially if it occurs before menstruation has ceased. In women who have passed the period of life usually termed the "menopause," or "change of life," such a blood-tinged discharge is more often due to a beginning cancer. Every woman, however, over thirty-five years of age should consult a physician if there appears an irregular bloody discharge such as described. It is particularly important to have such an examination made if the bleeding follows upon taking a douche or after intercourse. Somewhat later the discharge becomes odorous. A rather free odorous discharge, even in the absence of blood, deserves a careful investigation. When, in addition to this, the patient has pain radiating down the legs it is almost always an indication that the cancer has advanced far. *Do not wait for pain.*

To make a positive diagnosis of cancer of the uterus an internal examination by the physician is necessary. It is the only means of ascertaining the truth. The woman who puts off or shuns such an examination because of a false sense of modesty is taking the most serious risk. Much has already been done to overcome these foolish prejudices, but they are still an important element in preventing the early recognition of this disease.

As in most other forms of cancer the best treatment is the early surgical removal of the organ in which the cancer is located, together with as much surrounding tissue as seems advisable. This is a serious operation, and should be done only by those who have had considerable surgical experience, preferably in this particular kind of work. At the present time we know of no other method of permanently curing cancer of the womb. In recent years radium and deep X-ray treatment have been employed with considerable success in uterine cancer, but apparently only in exceptional instances do they give more than temporary relief. They should be given only by those who have made a careful study of the subject, and who have the facilities for giving treatment in the proper dosage.

Patients with uterine cancer can be divided into three groups: —

1. Those who come at the very beginning of their trouble.
2. Those who delay three or four months before attending to this matter.
3. Those who put off treatment until they experience pain or have a bad discharge for almost a year.

The number of women of the first group can in many cases be permanently cured. Even those in this group who have a return of the disease are usually given several more years of life free from pain or discomfort. In the second group the percentage of women cured is much smaller. In the third group there are practically no cures and but little temporary relief from suffering and discharge. It largely depends upon the woman herself into which of these three groups her case will fall. If she is on her guard against suspicious symptoms, and will not hesitate to undergo one or even several examinations in order that no important matter may be overlooked, then and *only* then can she have reasonable certainty of cure if afflicted with this disease.

Cancer of the Skin.

Cancer originating in the skin is called epithelioma. Unlike cancers in general, the majority of these cases occur in men, about one-half being located on the face. They most often develop after the age of forty, but may occur much earlier. Like all cancers, epithelioma begins so insidiously that its victim generally finds it impossible to say when he first noticed the little lump or scaling patch that is later found to be cancer. Unfortunately, cancer of the skin is entirely painless, and on this account the patient usually pays no attention to it until it becomes a more or less unsightly object.

Most skin cancers start as small, round, or flat-topped, slightly raised spots, which may increase in size very slowly. Sooner or later, sometimes after several years, there will be a scab covering the little growth or part of it. This scab is usually pulled off by a towel or fingernail, or in some other accidental way which will cause bleeding; then a new scab will form on the sore, which perhaps has meanwhile grown somewhat larger. The new scab may again be knocked or pulled off, and so on, the tumor all the while slowly spreading. Sometimes it heals up entirely at one side, while advancing at another. If the growth is located near the eyes, it may damage the lids so as ultimately to affect the sight; if located near the nose — and both these regions are very common locations for epithelioma — the damage done may lead to great deformity, even though the patient later goes to the most skillful physician.

Sometimes the cancer shows a tendency to wild or exuberant growth from the start, and forms a raised, reddish, cauliflower-like tumor, which any one at all concerned about his appearance will very soon call to a physician's attention. While most cancers of the skin spread very slowly, this is not always the case, for sometimes the spread is very rapid, and these rapidly growing neoplasms are particularly dangerous on account of their tendency to spread to the internal organs. Most epitheliomas remain purely skin troubles, but at least the possibility of a spread to internal organs is always present, and is the principal reason for not neglecting them, even if the local damage and the disfigurement are not sufficient.

Little as we know of the causes of cancer in general, one factor stands out prominently in the production of epitheliomas, for in a large proportion of cases we find that there has been some long-continued source of irritation acting on a particular portion of the skin. This irritation may be due to the frequent injury of a mole by means of a razor in shaving, or by pressure from a corset, or it may be the result of constant picking at a little harmless, scaling or crusted spot on the skin. The treatment of moles by "beauty doctors," or by the use of electricity or caustics, — methods which do not assure the complete removal of the deeper parts of the mole, — are responsible for some epitheliomas, because the traces of the original mole left behind are subject to constant irritation from the pull of the scar produced by the treatment. A pigmented mole should be left in peace as long as it shows no sign of growth, or it should be cut out with a knife. The resulting clear scar is usually less disfiguring than the mole, and of course the possibility of the malignant development of the mole is forever removed.

In treatment the one guide should be thoroughness of removal. Any method which is capable of removing or destroying the tumor at once may be used. Cutting it out with a knife or a cautery blade does this effectively, and in most cases is the best method, but when the epithelioma is located near the eyelids or near the tip of the nose, the deformity that would be produced by a safe cutting operation may be so great that other methods of treatment should be considered. In such cases many surgeons prefer to use radium or the X-ray, or to employ the methods of scraping and cauterization. These all give excellent results in the hands of experts. The cure of epithelioma of the skin is simple and certain if the case is placed in the hands of a good physician before the growth has spread beyond control.

CANCER OF THE LIP.

Cancer of the lip occurs frequently in men, and occasionally in women. It almost always appears on the *lower* lip in both men and women; indeed, cancer of the upper lip may be considered exceedingly rare, unless it be a direct extension from a far advanced lower lip growth.

This type of cancer may develop at any time after the age of thirty, but it more frequently develops after forty. It appears in many instances at a point which is subjected to continual irritation, such as from a rough or hot pipe stem, or from hot cigar smoke, or more often from a broken or decayed tooth. It is now known, however, that many non-smokers may develop this type of cancer, and of course many who smoke for years never develop it at all.

Cancer of the lower lip almost always begins as a small painless surface sore, much like the familiar cold sore, but often accompanied by even less discomfort. A tiny crack or scaly patch on the lip soon covers itself with a thin crust which in a few days falls off, but in the case of cancer, instead of leaving behind a new thin, smooth mucous membrane, the small crack still remains. It does not discharge or bleed, and another crust forms, which in turn separates or may be pushed off by the tongue, still leaving a small raw uncovered spot behind. Up to this point the process has taken perhaps a month, and from this time on the cycle is repeated over and over again, except that gradually the raw spot becomes larger, the edges a little firmer, and a trace of blood appears — a condition much like what is commonly called "proud flesh." If still allowed to continue untreated, the ulcer becomes large, may extend down below the red lip margin, and may start secondary growth as shown by a small lump or node under the chin, below and behind the cancer. At this stage it has become far more dangerous than when it was simply a local superficial sore.

The best treatment is a complete removal of all diseased structures by a competent surgeon. Advice should be sought by any adult who has an open sore of any sort upon the lip which does not readily disappear. Such a sore is not necessarily a cancer; nevertheless, it should always be the subject of a thorough investigation.

CANCER OF THE TONGUE.

This type of the disease, a little less frequent than cancer of the lip, is like it in commencing as a crack or a raw spot, but in this case on the smooth edge of the tongue. It is usually considered to be a "canker" spot, and most frequently is situated at a point in contact with a broken or decayed and sharp-edged tooth. Pain, except in very slight degree, is usually absent. The small spot does not heal and slowly grows both deeper and larger. Its edges are a little, but not very much, harder than the rest of the tongue.

This is the favorable time for complete removal by a competent surgeon, for the operation can be more thoroughly done, is less extensive in its scope, and is much more likely to remove the entire tumor. An operation at a late stage can never be as successful as that undertaken promptly, while the process is still local and limited.

In the course of a few months a small pea-shaped gland may be found under the chin, or at the angle of the jaw, but it is often absent, or at least very difficult to feel, especially if the chin is held up and the muscles contracted during the examination. Gradually a slight odor and an increase of saliva is noted as the ulcer enlarges. This ulcer may be situated anywhere on the tongue, but is most often located laterally on the forward half, and as growth continues some of the free motion of the tongue is lost.

Advice should be sought long before this late stage has arrived, for cancer of the tongue is an extremely serious form of the disease.

CANCER OF THE CHEEK.

This type of the disease, here considered as of the inner surface of the cheek, in a vast majority of cases means a late stage of lip or tongue cancer.

Even when there is no sore on tongue or lip, a small, raw, painless sore may sometimes appear on the inner side of the cheek, usually in contact with a bad tooth. It may often be situated in the depression between the cheek and the gums. It is essentially similar to tongue cancer in its progress, and advice concerning it should be sought at a correspondingly early date, that is, as soon as observed.

So far as known, chronic irritation is the only constant factor that appears in these three cancers, though syphilis seems to increase the susceptibility, and in this situation, as elsewhere, constant irritation seems rather to diminish local resistance to, than be the actual cause of, the cancer.

CANCER OF THE NOSE AND THROAT.

Malignant disease may occur in great variety in the nose, in the cavities communicating with the nose, and in the upper pharynx. It is always a serious condition and may develop at any period of life. Its causes are unknown, and its first symptoms may be obscure. The earliest symptoms are, as a rule, swelling, which may interfere with the passage of air through the affected side of the nose, increased discharge from that side, local pain and neuralgia, headache, loss of appetite and of weight. Of course, these symptoms may appear only one at a time or very gradually, so as to suggest to the patient no more than inflammation, but it is a great mistake to wait until a permanent swelling of the nose or cheek indicates the probability of a tumor before consulting a physician or surgeon. Occasionally a relatively slow-growing tumor in persons from twelve to twenty years of age may cause permanent deformity to the growing bones of the nose and palate. Frequent bleeding from the nose or mouth with changes in voice should suggest such a possibility without waiting for the later symptom of difficulty in swallowing. Transillumination and X-ray are of help in diagnosis, and should be used in all chronic nasopharyngeal disturbances.

The treatment of nasal tumors depends on the location, character and extent of the growth. Many harmless tumors are permanently removed by a simple operation; sometimes malignant growths are cured. Other forms of treatment, such as electro-cautery, electrolysis and radium, are occasionally used with beneficial results in advanced cases or in elderly patients upon whom an exhausting operation would hardly be advisable. As a rule, the tumors of this region grow with great rapidity so that early recognition is imperative. Where a suspicion of such trouble arises, the case should at once have the benefit of the best expert advice.

CANCER OF THE LARYNX.

The relative frequency of laryngeal cancer is unknown. About 1 in 7 of the growths of the larynx are malignant. It is rare in youth; about 40 per cent of cases occur between the ages of fifty and sixty, and 84 per cent between forty and seventy. Over 80 per cent occur in men.

The causes are uncertain; possible local irritation arising from various conditions may excite it. The influence of tobacco is questionable; where this disease is present, however, the use of tobacco must be discontinued.

The earliest symptoms are a change in the voice, difficulty in speaking, a sense of discomfort in the throat, and sometimes a slight cough. Pain may be present or not. If present, it is sharp and shooting in character, and felt in the larynx. Loss of voice follows, with difficulty and pain in swallowing, and copious expectoration of fetid material. As the surrounding muscles and glands are invaded there is swelling of the neck.

If recognized very early, while the disease is confined to a small area within the interior of the larynx, successful operation is possible, but only at the hands of an experienced skilled surgeon especially trained for this particular work. Proper local treatment will save considerable suffering and possibly somewhat prolong life.

CANCER OF THE TONSIL.

Primary cancer of the tonsil is an infrequent disease. This gland may be attacked either by sarcoma or carcinoma. Both forms begin in one tonsil only; therefore persistent symptoms confined to one tonsil should always arouse suspicion. Sarcoma of this structure may develop at any age, but is most common between fifteen and thirty. The early symptoms are congestion of the tonsil and near-by mucous membrane, soon followed by enlargement of that gland. Pain, when present at all, is usually dull, though there is often a sense of fullness in the throat, a thick voice, and difficulty in swallowing. The glands of the neck are slow to enlarge. Simple subacute tonsillitis, syphilis and most other forms of tonsillar congestion and enlargement usually respond to medical treatment; sarcoma does not. The growth is smooth, dark red, bleeds easily, and often ulcerates early. In the later stages the disease makes extensive advancement in all directions, involving the important structures of the neck, and making the outlook hopeless. Whatever prospect of successful treatment there may be lies in the early removal of the tumor or efficient X-ray or radium treatment.

Carcinoma of the tonsil is more frequent than sarcoma, and occurs, like most forms of cancer, in middle and advanced life. The earliest symptoms, often very obscure, are pain in the region of the tonsil, congestion, swelling and discharge from the tonsillar crypts. The surface is nodular and not inclined to bleed. Later there is increasing pain, radiating to the ear and aggravated by the act of swallowing. There is fullness in the throat and a thick voice. The progress is usually rapid. Ulceration occurs late, but the glands are involved early. Anemia follows, with a swelling of the larynx to such an extent that it may be necessary to admit air to the lungs by inserting a tube into the trachea.

Carcinoma of the tonsil has been successfully treated by radical surgical removal. Halfway measures are worse than useless. At the best the results of treatment are usually only palliative. Of course, the smaller and less active the growth, and the earlier it is recognized, the better the outlook. Radium and X-ray treatment may prolong life but almost never cure.

CANCER OF THE STOMACH.

The stomach is the seat of this disease in nearly a quarter of all the fatal cases of cancer. This proportion is indicated by the figures of the Census Bureau for 1917 for the Registration Area of the United States. This form of the disease is certainly not diminishing, but the death rate should be cut down by early diagnosis and operative treatment. The census report further shows that deaths from cancer of the stomach are in the proportion of 19.3 per 100,000 population. It is a little more common in men than in women, and occurs with increasing frequency with advancing years. Its onset is insidious, but nearly always there are warnings which, if heeded, would save many a life at the period of its greatest usefulness.

The stomach is a muscular contracting bag lined with mucous membrane. When it contains food it is in continual motion. If the food consists of hard lumps instead of soft, well-masticated material there is bruising of the lining of the stomach, and this bruising is most frequent at the outlet, where the muscular walls of the organ are in more violent motion. As a matter of fact, most cancers of the stomach occur near the outlet.

A stomach previously rendered sensitive by irritating substances has, in the very nature of things, a lowered resistance. Examples of such substances are alcohol, highly seasoned food and tobacco. The excessive use of these agents may be accompanied by retardation of digestion and by the secretion of too much acid. It is therefore thought that any condition which predisposes to ulcer of the stomach may be a forerunner of cancer.

The symptoms of ulcer and those of cancer are often similar. There is distress after eating, at times amounting to actual pain. A change in the desire for certain foods, such as a distaste for meat, is not uncommon. Belching, nausea and vomiting occur later. In the case of ulcer the vomiting of blood is more common than in cancer, but this sign is not rare in the later stages of cancer. The general health suffers, there is loss of weight and sallowness of the complexion. There is no visible lump or one which can be felt from the outside, even by a skilful physician, until the disease is far advanced.

When the growth is at the outlet of the stomach the symptoms of distress, pain and vomiting show themselves earlier than when the disease is remote from the outlet. Cancer of the upper end or inlet of the stomach is accompanied by difficulty in swallowing solid food.

The outlook for cure in cancer of the stomach depends entirely upon the possibility of the complete removal of the growth. Unfortunately most of the cases in which operation is undertaken are so far advanced by the time the physician sees the patient that only palliation is possible. Since cancers in this region often follow ulcers, it is self-evident that ulcers of the stomach should be recognized and cured before there is a cancerous degeneration. The various methods of modern diagnosis, including the X-ray, will usually establish the existence of a condition of the stomach requiring operation.

Complete and careful physical examination is imperative in all cases of indigestion beginning after the age of forty, and periodic examinations of all healthy adults should be encouraged.

CANCER OF THE INTESTINES.

This form of the disease is practically limited to the large bowel, and 1 cancer occurs in this locality to every 8 in the stomach. Two-thirds of the cancers of the large intestine are situated in its lowest portion, called the rectum. The greater part of those situated in the large intestine proper are in a portion of the bowel just above the rectum (on the left side), called the sigmoid. Intestinal cancer occurs in about the same frequency in both sexes, and differs from other forms of cancer in that it is found occasionally in young children.

There seem to be no local conditions which can be blamed for having any particular effect in the development of this type of the disease, though a small proportion of cases of cancer of the sigmoid develop on the site of a peculiar inflammatory condition — diverticulitis.

The symptoms differ somewhat according to whether the disease originates in the large intestine proper or in the rectum. In the large intestine proper the disease, for the most part, tends to spread circularly around the gut, producing constriction. The most consistent early symptom ordinarily noticed by the patient, therefore, is increasing constipation. It is regrettable that this symptom does not more often lead to a proper early investigation, many middle-aged or elderly persons apparently believing that an increasing constipation is natural with advancing years. The excessive use of cathartics may for a time combat this tendency, but if the individual takes notice, he will find, usually, that action of the bowels under these conditions produces pain at a certain and constant point. X-ray diagnosis may reveal a narrowing of the gut even in an early stage.

In this particular form of cancer passage of blood is an inconstant symptom, many people passing little or none excepting in the later stages. Abnormal passage of slime or mucus is also infrequent.

This type of cancer does not tend to attain very large size, leading to recognition of a tumor or lump, until the later stages. The condition is insidious, and until actual obstruction of the intestine exists the patient, unless unusually alert, may not realize that anything is the matter with him. Failure of general health, loss of flesh, alteration of color or jaundice are very late manifestations, and may only become evident after the disease has existed for some time, even two or three years.

It must be said that this is an extremely difficult form of cancer to diagnose because of the lack or late appearance of the symptoms. Careful periodic medical examination after the age of forty would result in the discovery of many of these tumors which now go unrecognized.

Cancer of the Rectum.

Signs here are somewhat more definite and more pronounced. Usually this kind of cancer starts from one side of the bowel instead of encircling it, and the manifestations of obstruction are usually delayed until late in the disease. Pain occurs more constantly than in the form just described, but is also a variable quantity, and an extensive growth sometimes exists without giving rise to very much pain until the later or hopeless stages.

On the other hand, the passage of some blood and abnormal matter like slime or mucus occurs quite frequently. The movements may have an unusually offensive odor. As in the large intestine proper, the disease is usually of slow growth, and the patient's general health may be maintained for a long time.

Neither of these conditions is difficult of diagnosis. The errors are made from lack of careful recognition of the possible importance of symptoms just described. Accurate diagnosis requires the making of appropriate examinations by an expert, particularly X-ray pictures of the large intestine proper, and a thorough examination of the rectum both by touch and inspection, if necessary with the aid of an electrically lighted instrument.

Bleeding from the bowels is a symptom which never should be neglected. While the most frequent form comes from the presence of hemorrhoids, the fact that it does come from this source and not from some other condition must be satisfactorily demonstrated. Moreover, not infrequently the two conditions — cancer and hemorrhoids — coexist. Most of the failures in the recognition of cancer of the rectum have come from this confusion with the symptoms or presence of hemorrhoids.

Treatment is surgical if the disease is in the early stage. Some portions of the large intestines lend themselves particularly well to the performance of a very satisfactory, safe and efficient radical operation.

Radium and X-rays only prolong life and do not give permanent cures.

The early surgical treatment of cancer of the large intestine is often successful. Cancer of the rectum has, on the whole, greater technical difficulties. The outlook for advanced and delayed cases is particularly bad.

Cancer of the Bladder.

Cancer of the bladder is fairly frequent, occurring in about 1 out of 200 malignant tumors, which means that in this country four or five hundred people die every year from cancer of this organ. The disease is five times as frequent in men as it is in women, and rarely occurs before the age of forty, while the greatest number of cases are seen in patients from fifty to seventy years of age. It is one of the most difficult forms of cancer to diagnose and treat, because such cancers may grow to a considerable size before they give any symptoms. Pain, which is not infrequent in these types, occurs only at a late stage, and then sometimes only as a feeling of bearing down, or while straining to pass urine. It is rare that a tumor is so large that it can be felt through the abdominal wall. It is of the utmost importance, therefore, that the cardinal symptom of cancer of the bladder should be generally known. This symptom is blood in the urine, which appears without warning or apparent cause. When it is noticed a physician should be immediately consulted; yet many cases of bladder carcinoma are allowed to run on for a long time, simply because the patient thinks that a little blood in the urine is a matter of no significance since there is no pain or stoppage of urine. In the late stages the bladder will always become severely inflamed, and foul-smelling urine will be passed with difficulty and pain. This means that the tumor has spread to the neck and walls of the bladder, and cure is then difficult or impossible. While blood in the urine is not necessarily a symptom of cancer, — for it may be caused by a stone in the bladder or even by non-malignant tumors of the bladder or by certain diseases of the kidney, — still, these facts can be ascertained only by a surgeon. The blood may be very slight and only occasional in the early stages of the non-malignant tumors (or even in the dangerous kinds), but in over three-fourths of the cases these tumors ultimately turn into a malignant form and then are extremely difficult to cure by surgery. It must be remembered, therefore, that when a bladder tumor gives much pain or can be felt in the abdomen it is usually hopeless. The patient should consult a surgeon the first moment that blood is seen, since the tumors grow slowly, as a rule, and do not spread in the body until they have been present for a long time.

A certain cure can be effected only by removal of the tumor from the bladder. X-ray and radium are of more value in delaying the growth and in relieving pain than they are in affording permanent relief. The electric cautery in the form of a high frequency current is also of little value in the treatment of cancer of the bladder, though it is very beneficial in the relatively harmless papillary outgrowths which occur not infrequently in this organ. The three things to be remembered, therefore, are that the appearance of a reddish coloring matter in the urine is a danger signal, whether or not it is accompanied by pain or stoppage of the urine; that a surgeon should be immediately consulted; and that the only way in which he can make a positive diagnosis is by inserting an examining instrument into the bladder so as to look in and see just what is present. If a physician cannot do this he can only guess at the cause of the trouble.

Cancer of the Kidney.

The only symptoms of cancer of the kidney are a lump in the abdomen and blood in the urine. A shadow may be seen on X-ray examination. Pain in the back is rare unless the tumor is large. The only cure is operation as early as possible. Fortunately, such cancers are rare.

Conclusions.

From what has been presented it will be noted that the conclusion of many of the leading statisticians of this country is that cancer is slowly increasing in the United States, and that it has become one of the most important causes of death in people forty-five years of age or over.

The public in general is ignorant of the symptoms of cancer, and not aware of the necessity for early treatment if good results are to be obtained. Because of this lack of knowledge relatively few patients go to a physician in time for satisfactory treatment.

The purpose of this handbook is to inform the public that the important factor in the successful treatment of cancer is its early recognition, which cannot be accomplished unless those who have tumors consult a competent physician on the discovery of the first symptoms.

As cancer is neither a germ disease nor contagious, but springs from some abnormal growth of cells in the body, it cannot be handled by such public health measures as have so greatly diminished typhoid fever and tuberculosis.

As, therefore, physicians cannot by any means control the incidence of cancer, their efforts are turned to the direct cure of the disease or of any slight trouble or irritation such as may lead to cancer.

The opinion of the most able physicians and surgeons of the country at the present time is that medicines taken internally are not effective as cures for cancer. Neither pastes nor other non-operative methods widely advertised by quack doctors (some of whom unfortunately are physicians) can cure cancer. The favorable results, reported in the newspapers and in the advertising material and testimonials of these charlatans, are obtained with ulcerating growths which are not cancerous. There is no question that a cancer can be destroyed by a caustic, but much of the normal tissue about the cancer is also eaten away, and the caustic is less easy to control in its action and much less certain than the removal of the whole tumor by the knife. Cancer cannot be cured by osteopathy or Christian Science.

Radium has been much used of late in the treatment of cancers of the skin, and has been found to be of great value in certain types, even when small quantities are employed. Other cancers are very difficult to cure by radium, even when used in large quantity. When the tumor has grown into the bone or cartilage, or has spread by previous ineffectual treatment by caustics, or when the growth is complicated by syphilis or by tuberculosis, the results by this method are unsatisfactory. Cancers of the tongue, lip and mouth, and especially those of the womb, have been treated with varying success, but it is still the general opinion of those who work with radium that for the present at least all cases of dangerous or malignant tumors which can be successfully removed by operation should be so treated, radium being reserved for such tumors as are beyond the reach of surgery. Deep-seated cancer, such as that of the breast, lung, stomach, abdomen, intestinal tract, bladder, and elsewhere, is usually beyond the effective reach of radium, but often much improvement can be obtained by carefully adjusted applications. The proper use of radium requires a large experience and great skill if serious burns are to be avoided, and as a rule large quantities must be employed, so that not every physician has a sufficient amount with which to treat cancer. On the other hand, X-rays have much the same effect on cancer that radium has. Suitable apparatus is not very expensive, so that if radium is not available X-rays may very properly be used in treating those types of cancer which are favorably influenced by radium. Whether X-rays are just as effective as are large quantities of radium in the general treatment of cancer has not yet been decided. It is not possible to use them as effectively in some cases of internal cancer, because while radium can be inserted into the bowel or into the uterus, it is very difficult to get a sufficient quantity of the X-rays to penetrate the body to these organs. In superficial cancers, however, when radium is not available, the X-ray should be used, and its use, soon after incomplete or palliative operation, often temporarily checks the growth and greatly prolongs the life and comfort of the patient. In places where radium is not available, the X-ray is, therefore, the best substitute.

Every one should remember, therefore, that cancer begins as a very small growth, and if it could be removed a short time after it appears would always be curable. As the symptoms are obscure and not always characteristic, it is necessary to consult a good physician at the earliest possible moment and not to delay or to apply home remedies in the hope that the trouble is of no importance. This should be borne in mind by every person over forty.

Cancer kills 1 in 10 of the people of the United States after that age. The leading physicians of the country believe that the best results at present are obtained by cutting the tumor out as soon as it appears and not waiting for it to grow, as it always does, and affect other parts of the body so that its removal is made much more difficult or dangerous.

AN OPINION BY THE ATTORNEY-GENERAL.

In response to a request from the Commissioner of Public Health, the Attorney-General has just made a ruling on the statute which provides for approval by the Attorney-General, under certain circumstances, of regulations made by local boards of health. His ruling in brief is that regulations made by municipal boards of health which carry penalties not specified by statute must be approved by the Attorney-General; if the penalty is one already specified by statute, such an approval is not necessary.

The statute which was the cause of this application for an official ruling was Statutes, 1921, chapter 303. Under the above ruling the regulations made under this statute do not need the approval of the Attorney-General. The full text of the opinion, received too late for insertion in this issue of The Commonhealth, will appear in the next issue.

THE COMMONHEALTH.

BIMONTHLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
Room 546, State House, Boston, Mass.

Cancer and the Public Health. — Cancer, so far as we know, is not a communicable disease, but, to a considerable extent, it is a preventable and a curable disease. As such, health officials cannot escape responsibility for taking part in efforts to control cancer. If the public as a whole were as well informed in regard to cancer as is a small part of the public, it would undoubtedly be possible materially to influence the death rate from this disease. It must be the health official's duty to see that the public is so informed.

Health departments, physicians, nurses, hygienists, and all, have their part to play in combating cancer. All can share in making public the facts about this disease. The surgeon is the man to whom we look for the cure of cancer actually established. But even the surgeon must have laboratory assistance, and here is one place, at least, where the health department may step in and offer aid.

In Massachusetts, for several years, the State Department of Public Health, in conjunction with the Harvard Cancer Commission, has offered to surgeons free pathological diagnosis of specimens suspected of being cancerous. This has served to aid directly the physician faced with the urgent need of deciding as to his patient's future; to impress upon the patient the value of accurate diagnosis; and to give the community, through its health officers, an opportunity to save the lives of some of its citizens. — M. C.

Cancer. — When the medical historian looks back to the beginning of the twentieth century he will speak of it as the epoch-making time when the great scourges were first attacked and put under control. Within the last few years we have seen large parts of the tropics made habitable through control of malaria and other tropical fevers. We have seen tuberculosis, the great white plague of the northern regions, converted from a hopeless disease into a decreasing, preventable, controllable infection. That the greatest remaining scourge is cancer is a fair statement, because, if we exclude infant mortality, cancer is second only to tuberculosis, and tuberculosis is decreasing while cancer is increasing. After the most extensive statistical investigation, after making every allowance for better records and better diagnosis, the figures show definite increase, not only in this country but in every country in which statistics are available, so that there can be no question of the increase of the disease. Moreover, it is a progressive increase. It is increasing more rapidly every year. To-day cancer forms the greatest cause of death in adult life. One person in every 11 of those who have attained forty-five years of age dies of cancer, — 1 woman in 8, 1 man in 14.

It has been the general impression in the community that the disease is hopeless. That is not, to-day, true. Our knowledge from a scientific standpoint is incomplete. There are many points in the nature and origin of the disease and in methods for its eradication from the community where our knowledge is not complete, but from the practical standpoint of the individual our knowledge to-day is satisfactory.

The American Society for the Control of Cancer is an organization of medical men and laymen having headquarters in New York, but with a board of directors representative of the national medical societies, and with members, both lay and professional, from all important medical centers in the United States.

The chief effort of the society has been directed to two objectives, — to educate the public to a better understanding of the disease of cancer in its numerous manifestations, and to arouse the medical profession to the importance of the problem and the need for prompt recognition and radical treatment of the disease during its early and curable stages. The chief method of educating the public and awakening them to the hopeful side of the situation, as well as to its seriousness, has been by means of popular lectures, authorized articles in the daily press and magazines, lectures before women's clubs, church organizations, nurses, social service workers and other health agencies available for the promulgation of health information. The work among the practicing physicians has been carried on through the medical societies and health boards in co-operation with the society, and literature embodying their latest information with regard to cancer has been widely disseminated all over the country. In Massachusetts a free diagnosis service for the examination of suspected tissue removed at operations has been established by the joint efforts of the Health Commissioner and the Cancer Commission of Harvard University, and this service, now in active operation, is proving of the greatest benefit.

Although statistics vary according to the location of the disease, the number of cases of cancer which are cured by operation in the early stages of the disease increases year by year. To procure for every patient the opportunity to which he is entitled for the cure of his disease, the early recognition of suspicious symptoms is the first consideration, and the furtherance of this object is the work for which the society is formed. Already the publicity given by its work is beginning to yield results. In communities where work along these lines has been carried on, surgeons are able to observe that patients present themselves for treatment at a more favorable stage of their disease than was formerly the case, and among the medical profession the standards for the recognition of cancer in its earlier stages have been distinctly raised. Dr. Hoffman, the authority on statistics, states definitely that in districts where this work has been carried on the increase of the disease has been arrested, and in some cases a decrease has been shown.

When organizations in each and every State are in full running order there is little room for doubt that the systematic prosecution of this work will materially reduce the present unnecessary mortality of this disease. — EDWARD REYNOLDS.

The Modern Treatment of Cancer. — While it is well known that X-ray and radium have added greatly to the resources of the surgeon in the treatment of advanced and inoperable cases of cancer, it is not so widely understood, either by the public or by the medical profession, that these agents are being employed to great advantage as an accessory to operation in early and operable cases.

As a result of radiation, either by X-ray or radium, a succession of phenomena can be observed varying, according to the dosage, from a temporary inhibition of growth up to a complete destruction of masses of tissue. There is some reason to believe that a very minute dosage of radioactivity may actually produce or be followed by some stimulation of growth. There is also reason to believe that cancer tissue of certain well-defined types, at least, is more vulnerable to radioactivity than are the normal tissues of the part. So far as the connective tissues surrounding the tumor are concerned it is well established that a marked fibrosis takes place as a result of radiation. Modern surgery makes use of these various effects of radiation in conjunction with operation in early cases, and to supplement it or replace the operation in the advanced and less hopeful case.

The best surgical opinion of the country agrees that operation is in almost every situation the safest and most certain cure for cancer in the early and favorable case. When we are dealing with metastasizing forms of cancer the radical operation aims to remove in one piece and with a wide margin of normal tissue the primary focus of disease, together with the sites of probable extension. The direction of extension for different forms of cancer varies rather more in accordance with the anatomy of the part than with the histological type of the disease, but, in general, it concerns especially the lymphatic drainage of the part affected. In all such cases the possibility of pre-operative radiation must be considered. By pre-operative radiation the cells of the tumor are damaged, their ability to reproduce themselves is diminished, and the risk of operative dissemination is minimized, while the connective tissue fibrosis aids in obstructing lymphatic extension and tends for long periods at least to keep the process localized, where it can be dealt with more effectively by operative or other measures. For metastasizing tumors of the external skin, lip, tongue, breast and vulva, pre-operative radiation probably adds somewhat to the patient's chances of ultimate cure. In general, the radiation of a high-powered X-ray tube is better for this purpose than that of radium, on account of the relatively large area which must be covered to extend beyond the limits of the radical operation.

Post-operative radiation must be regarded in the light of insurance. Here, again, the inhibiting effect upon the growth of cancer cells and the fibrosis of the connective tissue which result from continued radiation are of material benefit to the patient. If no cancer cells remain in the tissues no harm is done; if a few cells persist after the radical operation their growth may be inhibited for an indefinite period of time, and the fibrosis of the connective tissue helps to retain the process as a local lesion and to delay its spread to deeper areas. Here, again, the X-ray is to be preferred to radium, but if a local or regional recurrence of the disease takes place its destruction by radium implantation or its removal by operation can be undertaken with confidence that the spread of the disease to the deeper parts will not be thus accelerated. There are few cases of cancer subjected to radical operation in which a course of post-operative radiation does not add to the patient's chances of cure.

There is a third group of cases of cancer which, owing to their anatomical situation, are ill adapted to radical operative removal. This group includes especially cancer of the antrum and nasal passages, as well as the more advanced cases of cancer of the buccal mucous membranes. In this group of cases a preliminary course of X-ray treatment to seal the lymphatics may be followed by operative removal of the primary disease, as the anatomical position permits. The wound at the site of the primary tumor is then left open and accessible, and radium by insertion is used to complete the destruction of the disease, as may be necessary in the individual case. By this method cases of cancer of the most desperate character may be given relief, and in certain cases even a cure of the disease may be accomplished.

Finally, for the palliative treatment of advanced and inoperable cancer, it is well recognized that radium and X-ray are at present the most valuable agents we possess. It would seem, therefore, that the time is fast approaching, if it has not now arrived, when a surgeon who does not consider the advisability of X-ray or radium treatment as a pre-operative or post-operative measure, as indicated in the individual case, is not giving to his patient the advantages of all of the present resources which modern surgery affords for the control of cancer. — R. B. GREENOUGH.

ANNOUNCEMENTS.

A set of stereopticon slides on cancer control may be secured through the Department of Public Health, Division of Hygiene, for use by any person wishing to give a talk on the subject during cancer week.

Lecturers will also be furnished for groups or clubs if sufficient notice is given in advance.

The American Public Health Association announces four phases of its semi-centennial celebrations to be held in New York City Nov. 8 to 18, 1921: —

(*a*) *The Scientific Sessions* will be held November 14 to 18. There will be programs of the following sections: Laboratory, Vital Statistics, Public Health Administration, Sanitary Engineering, Industrial Hygiene, Food and Drugs. There will also be special programs on Child Hygiene and Health Education and Publicity.

(*b*) *Health Institute*, Nov. 8 to 12. During the week preceding the convention proper there will be organized demonstrations of the various types of public health activity in New York and environs: Health Department bureaus, laboratories, health centers, clinics, hospitals, etc. The purpose will be to show health functions in actual operation, especially those which may be duplicated in other cities.

In one sense the Health Institute may be considered as a school of Instruction in practical health administration.

(*c*) *Dr. Stephen Smith,* the founder and first president of the association, who is now in his ninety-ninth year, will be the guest of honor at a banquet to celebrate his approaching centennial and the semi-centennial of the association.

(*d*) *A Historical Jubilee Volume,* "Fifty Years of Public Health," will be published about October 1. There will be articles by seventeen authors, relating to the accomplishments and present status of each of the important branches of public health. While concentrating upon the public health of the last fifty years, the book will describe the earlier beginnings of public health in an introductory way, and may, therefore, be considered a general history of public health from the earliest days to the present.

Detailed announcements, programs and information concerning special railroad rates will appear in the "American Journal of Public Health" and the "News Letter" of the association from time to time, or may be had upon addressing the association at 370 Seventh Avenue, New York City.

FOOD AND ITS RELATION TO WEIGHT AND HEALTH.

By Alzira Wentworth Sandwall, Health Instructor in Foods, Massachusetts Department of Public Health.

How much do you weigh?
What is your normal weight for your height?
Do you know the answers to these two questions?
Do you know the dangers of any great variations from normal weight?

Every individual should find out his height and weight and compare it with the average weights given in the following tables, which have been computed from statistics collected by insurance companies: —

Average Weight of Men in Pounds with Clothes

	Feet and inches with shoes																	
Age	5–0	5–1	5–2	5–3	5–4	5–5	5–6	5–7	5–8	5–9	5–10	5–11	6–0	6–1	6–2	6–3	6–4	6–5
16	109	111	114	117	120	124	128	132	136	140	144	149	154	159	164	169	174	179
18	113	115	118	121	124	128	132	136	140	144	148	153	158	163	168	173	178	183
20	117	119	122	125	128	132	136	140	144	148	152	156	161	166	171	176	181	186
22	119	121	124	127	131	135	139	142	146	150	154	158	163	168	173	178	183	188
24	121	123	126	129	133	137	141	144	148	152	156	160	165	171	177	182	187	192
26	123	125	127	130	134	138	142	146	150	154	158	163	168	174	180	186	191	196
28	125	127	129	132	135	139	143	147	151	155	159	164	170	176	182	188	193	198
30	126	128	130	133	136	140	144	148	152	156	161	166	172	178	184	190	196	201
32	127	129	131	134	137	141	145	149	154	158	163	168	174	180	186	192	198	203
34	128	130	132	135	138	142	146	150	155	160	165	170	176	182	188	194	200	206
36	129	131	133	136	139	143	147	151	156	161	166	171	177	183	190	196	202	208
38	130	132	134	137	140	144	148	152	157	162	167	173	179	185	192	198	204	210
40	131	133	135	138	141	145	149	153	158	163	168	174	180	186	193	200	206	212
42	132	134	136	139	142	146	150	154	159	164	169	175	181	187	194	201	208	214
44	133	135	137	140	143	147	151	155	160	165	170	176	182	188	195	202	209	215
46	134	136	138	141	144	148	152	156	161	166	171	177	183	189	196	203	210	216
48	134	136	138	141	144	148	152	156	161	166	171	177	183	190	197	204	211	217
50	134	136	138	141	144	148	152	156	161	166	171	177	183	190	197	204	211	217
52	135	137	139	142	145	149	153	157	162	167	172	178	184	191	198	205	212	218
54	135	137	139	142	145	149	153	158	163	168	173	178	184	191	198	205	212	219

Average Weight of Women in Pounds with Clothes

	Feet and inches with shoes																
Age	4–8	4–9	4–10	4–11	5–0	5–1	5–2	5–3	5–4	5–5	5–6	5–7	5–8	5–9	5–10	5–11	6–0
16	102	104	106	108	109	111	114	117	120	124	128	132	136	139	143	148	153
18	104	106	108	110	112	114	117	120	123	126	130	134	138	141	145	150	155
20	106	108	110	112	114	116	119	122	125	128	132	136	140	143	147	151	156
22	107	109	111	113	115	117	120	123	126	129	133	137	141	145	149	153	157
24	109	111	113	115	117	119	121	124	127	130	134	138	142	146	150	154	158
26	110	112	114	116	118	120	122	125	128	131	135	139	143	147	151	155	159
28	111	113	115	117	119	121	123	126	130	133	137	141	145	149	153	156	160
30	112	114	116	118	120	122	124	127	131	134	138	142	146	150	154	157	161
32	113	115	117	119	121	123	125	128	132	136	140	144	148	152	155	158	162
34	115	117	119	121	123	125	127	130	134	138	142	146	150	154	157	160	163
36	116	118	120	122	124	126	128	131	135	139	143	147	151	155	158	161	164
38	117	119	121	123	125	127	130	133	137	141	145	149	153	157	160	163	166
40	119	121	123	125	127	129	132	135	138	142	146	150	154	158	161	164	167
42	120	122	124	126	128	130	133	136	139	143	147	151	155	159	162	166	169
44	122	124	126	128	130	132	135	138	141	145	149	153	157	161	164	168	171
46	123	125	127	129	131	133	136	139	142	146	150	154	158	162	165	169	172
48	124	126	128	130	132	134	137	140	143	147	152	156	160	164	167	171	174
50	125	127	129	131	133	135	138	141	144	148	152	156	161	165	169	173	176
52	125	127	129	131	133	135	138	141	144	148	152	157	162	166	170	174	177
54	125	127	129	131	133	135	138	141	144	148	153	158	163	167	171	174	177

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Underweight in Adults.

Causes.

In adults a few pounds underweight, especially after the age of thirty-five, is not undesirable, but a great variation in weight, either underweight or overweight, is not conducive to good health or efficiency.

Anemia and Tuberculosis. — An unexplained loss of weight or a continued loss of weight, especially when accompanied by fatigue and lassitude, is serious enough to be brought to the attention of a physician.

An adult who is losing weight or who is several pounds underweight has less resistance to disease, and may, perhaps, be suffering already from anemia or tuberculosis or some other unsuspected disease. For this reason it is wisest to go to a physician at once for a thorough physical examination.

Other Causes of Underweight. — Nervousness, worry, loss of sleep, unhygienic or unsanitary surroundings, and a wrong or insufficient diet, are often causes of excessive underweight.

Food and Underweight.

While proper and sufficient food is not the entire cure for underweight, the regulation of the diet is one of the most important of the curative and preventive agents. It is, however, necessary, in addition to regulating the diet, to find other predisposing causes and remove them.

To increase weight one should bear in mind that the food one eats makes the body that one has, and supplies the power for the body to do its unconscious work, such as circulation, respiration and digestion, and the conscious work performed daily by any individual, such as the work of various occupations, recreations, etc.

When the food is insufficient to supply material to build up the body, and energy for its work, the stored-up fat is used and the individual loses in weight.

To increase Weight.

To increase weight one should include in the diet more of the fat-forming foods, such as fats, starches and sugars.

To include Fats. — Eat butter freely on bread or with vegetables.

Use cream as much as possible.

Eat bacon freely.

Eat salads with plenty of oil dressings.

Take olive oil or cod liver oil three times a day.

Remember that egg yolk contains an easily digested fat, and may be taken freely in egg nogs, as raw eggs, or with fruit juice.

To increase Starchy Foods. — Eat cereals daily, remembering that cooked cereals are best.

Eat at least two slices of bread every meal, remembering that dark breads are best.

Eat at least two potatoes during the day.

Include rice, macaroni and spaghetti in the diet.

Eat puddings made of bread, cereals, etc.

To include Sugars. — In adding sugar to the diet remember that sweets taken between meals or at the beginning of the meals dull the appetite and will do more harm than good.

The most easily digested sugars are found in milk, fruits and vegetables.

Sweet desserts may be eaten freely, and candy may be taken at the end of the meal.

Dried fruits, such as prunes and figs, may be eaten at bedtime, at the end of the meals, or may be added to breakfast cereals and puddings. Fruit juices from sweet fruit, with the addition of extra sugar, may be taken between meals.

Other Methods to add to Weight through Diet.

Many people have added to their weight by adding milk to their diet to the amount of a quart a day, which may be taken with the meals or between meals plain, or in cocoa, soups, desserts or any palatable form.

Simple luncheons, such as a glass of milk, a cup of broth, fruit, etc., may be taken between meals and at night before retiring. Continual nibbling between meals, however, should be avoided.

When underweight is due to a capricious appetite, weight may be added by changing the diet and eating regularly simple, wholesome foods and learning to like foods which should be included in the diet and may have been left out because of a capricious appetite. Such foods are cereals, milk, eggs, fruit, vegetables and bread and butter.

No-breakfast Habit. — Sometimes underweight is due to the *no-breakfast* habit. Remember, that if no food is taken into the body, energy to perform the work of the day will be taken from the body itself. In order to have energy to spend we must acquire it in the form of food taken into the body.

It must also be borne in mind that extra weight cannot be added and retained in a week or a month, but comes as a result of a persistent, successful effort over a long period of time to take into the body food in excess of the needs of the body. Since every movement made by any part of the body uses up energy, which is in turn supplied by food, the cultivation of a calm manner in place of a nervous disposition will help in the effort to gain. We all can think of thin, nervous individuals who are continually tapping with their fingers and toes and going at top speed who could well afford to slow down a bit and, instead of using food in useless energy, use it to add weight.

OVERWEIGHT IN ADULTS.

Causes.

When a person eats more than enough to build and repair the body and to furnish heat for the activities of the body, the surplus is stored up in the form of fat, and a person gains in weight.

A certain amount of fatty tissue is necessary in the body, not only for appearance but to protect the nerves, muscles and vital organs and to hold the vital organs in place. It is also the storehouse of energy, and a moderate amount is needed for reserve to be drawn upon in emergency. But overweight in adults, especially after the age of thirty-five, is very undesirable. Life insurance statistics show that those who are of average weight, or slightly below, live longer than those who are above weight, as a rule.

Causes of overweight are overeating, lack of sufficient exercise, eating of the wrong kinds of food, or defective functioning of internal glands.

Dangers of Overweight.

Overweight means that the body has an extra burden to carry about, and that every muscle and organ is taxed to do extra work.

The vital organs, instead of being covered with only a protective layer of fat, are burdened with excessive fat which often accumulates around the muscles of the heart and greatly handicaps its work. The waste products of protein foods are eliminated through the kidneys, and when an excess of such foods is eaten there is an excess of waste products circulating in the blood, and diseases of the kidneys and hardening of the arteries may result.

Overeating often is followed by diabetes. Gout is another disease believed to be closely related to overeating.

Persons who are overweight are also less able to survive the strain of great physical exertion or any acute disease such as pneumonia or influenza.

Overweight in adults is not, then, a condition to be considered lightly, but one that should be prevented and corrected.

As has been said of "thinness," overweight is not natural and does not just naturally run in families. The tendency to overeat and to eat heavily of fat-producing food is, however, very characteristic of overweight families.

Diet for Overweight.

A person suffering from obesity or overweight should not try to reduce by diet except under the care of a physician who has made a thorough physical examination and understands his condition. To do so otherwise might prove dangerous to the individual.

An adult who is only a few pounds overweight, or one who has a tendency to overweight, can easily reduce his weight a few pounds by eating less of the fat-producing foods, *i.e.*, sugars, starches and fats, and by taking more exercise to burn up the excessive fat. The time to change the diet is when the tendency to store fat begins to appear. One beginning to add excessive weight should eat sparingly of butter, cream, rich salads and desserts and starchy foods, and curb their craving for candies, sweet drinks and soda. He should also avoid too much water or too many liquid foods, which have a tendency to increase the weight, or much salt, which creates thirst. He should eat plenty of bulky foods, such as fruits and vegetables and coarse breads, together with lean meats and non-oily fish, which will satisfy the appetite that has been increased by exercise and will provide sufficient material for the body activities, but which do not furnish material for fatty tissue.

It is easier to keep at normal weight than to reduce weight, for with the extra weight comes the sluggishness and lack of desire to exercise.

Suggestive Foods for Overweight.

Fish (Lean)

- Cod.
- Haddock.
- Halibut.

Meat (Lean)

- Beef.
- Fowl.
- Lamb.
- Mutton.

Dairy Products.

- Buttermilk.
- Cottage cheese.
- Eggs (sparingly).
- Koumiss.
- Milk (skimmed).
- Vitalait.

Vegetables.

- Artichokes.
- Asparagus.
- Brussels sprouts.
- Cabbage.
- Cauliflower.
- Celery.
- Cucumbers.
- Greens of all kinds.
- Lettuce.
- Onions.
- Radishes.
- Spinach.
- Squash.
- String beans.
- Tomatoes.
- Turnips.

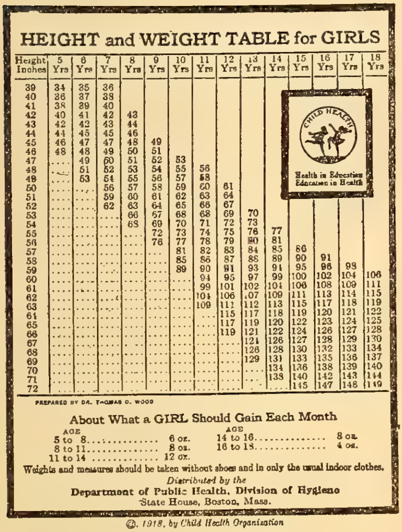
Fruits.

- Apples.
- Apricots.
- Blackberries.
- Cherries.
- Grapefruit.
- Oranges.
- Peaches.
- Pears.
- Pineapples.
- Raspberries.
- Strawberries.

Bread and Cereals.

- Use very sparingly day-old dark breads.
- Rusks.
- Swedish türnbread or hard-tack.

The following standards of height and weight for normal boys and girls have been accepted by the National Child Health Organization of America: —



HEIGHT and WEIGHT TABLE for GIRLS

Height Inches	5 Yrs	6 Yrs	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs
39	34	35	36											
40	36	37	38											
41	38	39	40											
42	40	41	42	43										
43	42	42	43	44										
44	44	45	45	46										
45	46	47	47	48	49									
46	48	48	49	50	51									
47	....	49	50	51	52	53								
48	....	51	52	53	54	55	56							
49	....	53	54	55	56	57	58							
50	....	....	56	57	58	59	60	61						
51	....	....	59	60	61	62	63	64						
52	....	....	62	63	64	65	66	67						
53	....	....	....	66	67	68	68	69	70					
54	....	....	....	68	69	70	71	72	73					
55	....	....	....	....	72	73	74	75	76	77				
56	....	....	....	....	76	77	78	79	80	81				
57	....	....	....	....	....	81	82	83	84	85	86			
58	....	....	....	....	....	85	86	87	88	89	90	91		
59	....	....	....	....	....	89	90	91	93	94	95	96	98	
60	....	....	....	....	....	....	94	95	97	99	100	102	104	106
61	....	....	....	....	....	....	99	101	102	104	106	108	109	111
62	....	....	....	....	....	....	104	106	107	109	111	113	114	115
63	....	....	....	....	....	....	109	111	112	113	115	117	118	119
64	....	....	....	....	....	....	....	115	117	118	119	120	121	122
65	....	....	....	....	....	....	....	117	119	120	122	123	124	125
66	....	....	....	....	....	....	....	119	121	122	124	126	127	128
67	....	....	....	....	....	....	....	....	124	126	127	128	129	130
68	....	....	....	....	....	....	....	....	126	128	130	132	133	134
69	....	....	....	....	....	....	....	....	129	131	133	135	136	137
70	....	....	....	....	....	....	....	....	....	134	136	138	139	140
71	....	....	....	....	....	....	....	....	....	138	140	142	143	144
72	....	....	....	....	....	....	....	....	....	....	145	147	148	149

PREPARED BY DR. THOMAS D. WOOD

About What a GIRL Should Gain Each Month

AGE		AGE	
5 to 8	6 oz.	14 to 16	8 oz.
8 to 11	8 oz.	16 to 18	4 oz.
11 to 14	12 oz.		

Weights and measures should be taken without shoes and in only the usual indoor clothes.

Distributed by the
Department of Public Health, Division of Hygiene
State House, Boston, Mass.

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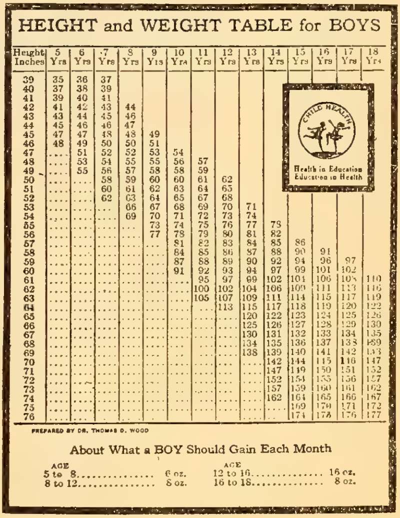

HEIGHT and WEIGHT TABLE for BOYS

Height Inches	5 Yrs	6 Yrs	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs
39	35	36	37											
40	37	38	39											
41	39	40	41											
42	41	42	43	44										
43	43	44	45	46										
44	45	46	46	47										
45	47	47	48	48	49									
46	48	49	50	50	51									
47	....	51	52	52	53	54								
48	....	53	54	55	55	56	57							
49	....	55	56	57	58	58	59							
50	....	....	58	59	60	60	61	62						
51	....	....	60	61	62	63	64	65						
52	....	....	62	63	64	65	67	68						
53	....	....	....	66	67	68	69	70	71					
54	....	....	....	69	70	71	72	73	74					
55	....	....	....	....	73	74	75	76	77	78				
56	....	....	....	....	77	78	79	80	81	82				
57	....	....	....	....	....	81	82	83	84	85	86			
58	....	....	....	....	....	84	85	86	87	88	90	91		
59	....	....	....	....	....	87	88	89	90	92	94	96	97	
60	....	....	....	....	....	91	92	93	94	97	99	101	102	
61	....	....	....	....	....	....	95	97	99	102	104	106	108	110
62	....	....	....	....	....	....	100	102	104	106	109	111	113	116
63	....	....	....	....	....	....	105	107	109	111	114	115	117	119
64	....	....	....	....	....	....	....	113	115	117	118	119	120	122
65	....	....	....	....	....	....	....	....	120	122	123	124	125	126
66	....	....	....	....	....	....	....	....	125	126	127	128	129	130
67	....	....	....	....	....	....	....	....	130	131	132	133	134	135
68	....	....	....	....	....	....	....	....	134	135	136	137	138	139
69	....	....	....	....	....	....	....	....	138	139	140	141	142	143
70	....	....	....	....	....	....	....	....	....	142	144	145	146	147
71	....	....	....	....	....	....	....	....	....	147	149	150	151	152
72	....	....	....	....	....	....	....	....	....	152	154	155	156	157
73	....	....	....	....	....	....	....	....	....	157	159	160	161	162
74	....	....	....	....	....	....	....	....	....	162	164	165	166	167
75	....	....	....	....	....	....	....	....	....	....	169	170	171	172
76	....	....	....	....	....	....	....	....	....	....	174	175	176	177

PREPARED BY DR. THOMAS D. WOOD

About What a BOY Should Gain Each Month

AGE		AGE	
5 to 8	6 oz.	12 to 16	16 oz.
8 to 12	8 oz.	16 to 18	8 oz.

UNDERWEIGHT IN CHILDREN.

Causes.

In children underweight generally means malnutrition due to insufficient or wrong food, too little rest or sleep, overexercise, a lack of ventilation in sleeping apartment, which destroys the appetite, or some physical defect such as adenoids or enlarged tonsils.

Malnutrition in children means a lowered resistance to disease. Children suffering from malnutrition are not as well able as normal children to keep up in their school work and other activities, and to develop normally, either physically or mentally.

The germs of tuberculosis are often contracted in childhood. The undernourished child is the one who easily becomes the active case of tuberculosis during the strain and stress of early adult life because of the inability of his body to overcome the disease.

To increase Weight.

After having remedied any physical defect such as adenoids or enlarged tonsils, etc., and ascertaining that the child has plenty of sleep and rest and fresh air, and is not worrying over some fancied or real trouble, consider his diet carefully to see if he is eating the right foods regularly three times a day, is eating slowly, chewing thoroughly and is happy while he eats.

Remember that it is not generally natural for a child to be thin, and if "thinness runs in a family," that it is more than likely that a family as a whole has a tendency to thinness because of the dietary habits.

Children should be taught good food habits and to like the foods that are good for them. It is not wise to force a child to eat against his will, but it is necessary for his health for him to have the right foods three times a day. Every child needs plenty of milk, eggs, cereals, fruits and vegetables, bread and butter, and simple sweets. Bear in mind continually that the body is made from the food one eats, and that the time to think about the kind of body your child shall have is before he is born. Therefore the mother should give the child the right start by eating the right foods herself, and she should take great pains to teach her child early right food habits and a real appreciation of food and its relation to health.

Overweight in Children.

A few pounds overweight in children is more desirable than otherwise, but if a child is many pounds overweight, with a sluggish disposition and a poor complexion, it is wise to take the child to a physician for a thorough examination. It may be that the child is simply overeating the wrong kinds of food, but, even if the diet is at fault, the reducing through diet and exercise should be done under the direction of a physician.

Eating is a duty, and nature has made it a pleasure as well. Let us use that pleasure wisely, and, since we spend more for food than any one thing, buy health instead of disease.

RÉSUMÉ OF COMMUNICABLE DISEASES.

July, 1921.

General Prevalence.

There were 4,025 cases of communicable diseases reported during July, as compared with 6,078 for June. This is the least number reported for any month this year. There were decreases in the reported incidence of all the more important communicable diseases. One disease, anterior poliomyelitis, appeared upon the upward trend.

Anterior Poliomyelitis. — There were 26 cases of anterior poliomyelitis reported for July, while the total for June was 4 cases. Whether this increased incidence foreshadows its reaching epidemic proportions is problematical to state.

Diphtheria. — The total number of cases for July was 441, a substantial decrease from the number reported for June, which was 623; 441 represents the least number of cases since September, 1920.

Gonorrhea and *syphilis* were reported in about the same number as last month, 459 for the former and 171 for the latter.

Measles. — There were 866 cases reported for this month as compared with 1,635 for the previous month. This constitutes a substantial decrease.

Lobar Pneumonia. — There were 87 cases reported for July as against 291 for June, an expected seasonal decrease.

Scarlet Fever. — There were 251 cases reported for July as against 492 for June. This low figure has not been reached since August, 1920.

Pulmonary Tuberculosis. — There were 503 cases reported for July. This is about the usual number.

Typhoid fever was reported in 62 instances. These were scattered throughout the State.

Whooping cough showed a slight decrease, with 475 cases as compared with 509 for June.

Rare Diseases.

Anterior poliomyelitis was reported from Adams, 1; Andover, 1; Belmont, 1; Boston, 6; Danvers, 1; Haverhill, 4; Lawrence, 1; North Adams, 6; Norwood, 2; Quincy, 1; Springfield, 1; Wakefield, 1; total, 26.

Dog bite requiring antirabic treatment was reported from Freetown, 1; Lowell, 2; total, 3.

Dysentery was reported from Everett, 1.

Encephalitis lethargica was reported from Arlington, 1; Boston, 1; Everett, 1; Fall River, 1; Haverhill, 1; Lawrence, 1; Marlborough, 1; Northampton, 1; Springfield, 1; Webster, 1; total, 10.

Epidemic cerebrospinal meningitis was reported from Boston, 5; Gill, 1; Lynn, 1; New Bedford, 1; North Adams, 2; Pittsfield, 1; West Bridgewater, 1; Weymouth, 1; Worcester, 1; total, 14.

Malaria was reported from Boston, 2; Brockton, 2; Dedham, 1; Fall River, 1; Framingham, 1; Worcester, 1; total, 8.

Septic sore throat was reported from Ayer, 1; Boston, 1; Somerville, 1; Taunton, 1; total, 4.

Tetanus was reported from Barnstable, 1; Cambridge, 1; Lowell, 1; New Bedford, 1; North Adams, 1; Pittsfield, 2; total, 7.

Trachoma was reported from Boston, 2; Cambridge, 1; Lancaster, 1; Norwood, 1; Watertown, 1; total, 6.

Trichinosis was reported from Somerville, 1.

Distribution.

All Communicable Diseases.

	July, 1921.	July, 1920.
Total cases (all causes),	4,153	6,306
Case rate per 100,000 population,	106.4	163.0

Certain Prevalent Diseases.

	July, 1921.	July, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Diphtheria: —			
Total cases,	441	472	Everett, (4) 12 Lowell, (9) 25 Medford, (2) 11 Waltham, (4) 14
Case rate per 100,000 population,	11.3	12.2	
Measles: —			
Total cases,	866	2,110	Norwood, (2) 15 Quincy, (10) 72 Lynn, (18) 70 Arlington, (4) 28 Boxborough, (0) 18 Littleton, (0) 11 Pepperell, (0) 20
Case rate per 100,000 population,	22.2	54.5	
Scarlet fever: —			
Total cases,	251	337	Methuen, (2) 11 Pepperell, (0) 6
Case rate per 100,000 population,	6.4	8.7	
Typhoid fever: —			
Total cases,	62	103	Gloucester, (0) 7
Case rate per 100,000 population,	1.6	2.7	
Whooping cough: —			
Total cases,	475	910	Attleboro, (0) 9 Fall River, (20) 48 Needham, (0) 17 Sharon, (0) 19 Lexington, (0) 10 Tyngsborough, (0) 21 Millbury, (0) 35 Pittsfield, (0) 19
Case rate per 100,000 population,	12.2	23.5	
Tuberculosis, pulmonary: —			
Total cases,	621	565	
Case rate per 100,000 population,	15.9	14.6	
Tuberculosis, other forms: —			
Total cases,	64	69	
Case rate per 100,000 population,	1.6	1.8	

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

August, 1921.

General Prevalance.

There were 3,418 communicable diseases reported during August as compared with 4,018 in July. This is the least number reported for any month this year. While in the aggregate there were fewer reports, there were slight increases in some of the more important communicable diseases.

Anterior Poliomyelitis. — There were 61 cases of poliomyelitis reported during August as compared with 26 for July. The total for August, 1920, was 93. While these 61 cases represent reports from twenty-five cities and towns, it has been evident that the disease has centered itself about four foci, — one in the eastern, one in the northeastern and two in the western parts of the State; 48 of the 61 reported cases occurred in one of these localities.

Diphtheria. — There were 516 cases reported for this month as compared with 441 for July.

Dog Bite. — There were 20 cases of dog bite requiring antirabic treatment reported for this month. The records for the last five years show that this is the largest monthly total during that time. During 1918 only 20 cases of dog bite were reported during the entire year.

Epidemic cerebrospinal meningitis was reported in 16 instances. Total for July, 14.

Gonorrhea and *syphilis* showed increased reported incidence, 542 for the former and 191 for the latter. Totals for last month, 459 and 171, respectively.

Measles. — There were 268 cases reported for this month as compared with 866 for July. This is the smallest monthly total since September, 1920.

Lobar pneumonia was reported in 76 instances.

Scarlet Fever. — There were 232 cases reported for August as compared with 251 for July.

Pulmonary Tuberculosis. — There were 619 cases reported for August as compared with 503 for July. This increase is probably due to better reporting rather than to any actual increase in the number of cases.

Typhoid Fever. — There were 115 cases reported for August. During the same period of 1920, 116 cases were reported; 9 of these cases were residents of neighboring States, and were brought into Massachusetts to receive hospital treatment.

Whooping Cough. — There were 375 cases reported as compared with 475 for the previous month.

Rare Diseases.

Anterior poliomyelitis was reported from Adams, 1; Arlington, 1; Athol, 1; Attleboro, 1; Becket, 1; Boston, 13; Cambridge, 1; Dalton, 2; Everett, 1; Fall River, 1; Haverhill, 7; Lawrence, 6; Lynn, 2; Medford, 2; Melrose, 1; Methuen, 1; Montague, 1; Newburyport, 1; North Adams, 4; Pittsfield, 3; Revere, 2; Springfield, 4; Waltham, 1; Wellfleet, 1; Westford, 2; total, 61.

Dog bite requiring antirabic treatment was reported from Boston, 2; Braintree, 1; Chelmsford, 1; Fall River, 2; Framingham, 1; Lawrence, 1; Lowell, 4; Natick, 1; North Adams, 2; Winthrop, 5; total, 20.

Dysentery was reported from Boston, 1; Holden, 1; Haverhill, 1; Ipswich, 1; Worcester, 1; total, 5.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Cambridge, 1; Dalton, 1; Fall River, 1; Framingham, 1; Haverhill, 1; Lee, 1; Leominster, 1; Lowell, 1; Revere, 2; Somerville, 1; Springfield, 1; Southbridge, 1; total, 16.

Encephalitis lethargica was reported from Boston, 1; Lynn, 1; Newton, 2; Winthrop, 1; total, 5.

Malaria was reported from Boston, 2; Dedham, 1; Newton, 1; Winthrop, 1; Worcester, 1; total, 6.

Pellagra was reported from Waltham, 1.

Septic sore throat was reported from Boston, 2; Lowell, 2; Springfield, 1; total, 5.

Tetanus was reported from Beverly, 1; Boston, 1; Fall River, 1; Fitchburg, 1; total, 4.

Trachoma was reported from Boston, 4; Chelsea, 2; Somerville, 1; total, 7.

Distribution.

All Communicable Diseases.

	August, 1921.	August, 1920.
Total cases (all causes),	3,422	3,941
Case rate per 100,000 population,	87.7	101.9

Certain Prevalent Diseases.

	August, 1921.	August, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
			Fall River,	(7)	21
			Boston,	(112)	133
			Newton,	(3)	10
			Norwood,	(0)	3
			Everett,	(4)	9
			Haverhill,	(7)	24
			Ipswich,	(0)	5
Diphtheria: —			Lynn,	(12)	18
Total cases,	516	428	Belmont,	(0)	3
Case rate per 100,000 population,	13.2	11.1	Lowell,	(8)	13
			Maynard,	(0)	6
			Medford,	(2)	7
			Somerville,	(6)	14
			Northampton,	(1)	6
			Montague,	(0)	15
			Winchendon,	(0)	3
			Worcester,	(16)	50
			Athol,	(0)	9
			Boston,	(38)	49
			Chelsea,	(2)	9
			Everett,	(2)	14
			Ipswich,	(0)	6
Scarlet fever: —			Malden,	(1)	5
Total cases,	232	213	Marblehead,	(0)	3
Case rate per 100,000 population,	5.9	5.6	Newburyport,	(0)	5
			North Andover,	(0)	10
			Northampton,	(0)	5
			Springfield,	(6)	11
			Williamsburg,	(0)	4
			Quincy,	(4)	25
Measles: —			Lynn,	(2)	19
Total cases,	268	452	Malden,	(3)	17
Case rate per 100,000 population,	6.9	11.7	Stoneham,	(0)	6
			Andover,	(0)	31
			Somerville,	(3)	8
			Belchertown,	(0)	6
Typhoid fever: —			Boston,	(16)	21
Total cases,	115	116	Lynn,	(4)	6
Case rate per 100,000 population,	2.9	3.0	Adams,	(1)	6
			Worcester,	(6)	13
			Fall River,	(18)	41
			Needham,	(0)	8
			Quincy,	(4)	10
Whooping cough: —			Sharon,	(0)	27
Total cases,	375	803	Lynn,	(8)	14
Case rate per 100,000 population,	9.6	20.8	Waltham,	(7)	18
			Great Barrington,	(0)	6
			Pittsfield,	(3)	18
			Worcester,	(8)	15
			Barre,	(0)	13
Tuberculosis, pulmonary: —					
Total cases,	619	469			
Case rate per 100,000 population,	15.9	12.9			
Tuberculosis, other forms: —					
Total cases,	68	52			
Case rate per 100,000 population,	1.7	1.3			

[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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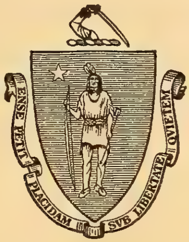

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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THE MODERN PUBLIC HEALTH MOVEMENT.

By Eugene R. Kelley, M.D., State Commissioner of Public Health.

I. The Historical Background.

PUBLIC health was recognized in a dim fashion in remote antiquity. The famous sanitary code of Moses is presumably largely a reflection of his training in the "wisdom of Egypt."

From antiquity down to very modern times, however, public health laws and the administration thereof were largely frantic, irrational and often ludicrous attempts to ward off the ever-recurring pestilences by pseudo-scientific procedures. In these procedures a basic element of rational application of the knowledge born of careful observation was usually so intermingled with fanciful or superstitious reasons that the practical result was largely nil except for the gradual appreciation of rigid quarantine as a deterrent of some kinds of epidemic disease.

It is important to recognize that the entire structure of our modern public and personal hygiene, of which public health administration is the visible capstone, rests upon certain fundamental problems which faced paleolithic man just as definitely as they do us, and to which he reacted partly by reason but very largely by instinct; and the principal difference between him and us is a slowly but constantly growing greater proportion of reason in our present-day reactions to these same problems.

These fundamental problems I will enumerate. They are four in number, — the problem of food, the problem of shelter, the problem of defence, the problem of propagation.

The public health movement in its modern sense cannot claim any remote ancestry. It is as modern as the practical utilization of electric energy and almost as modern as the telephone.

Various dates have been assigned as marking the true beginning of our modern conceptions of public health, but in general we can say they scarcely go back farther than seventy-five years; and if you wish a landmark to fix for your own satisfaction, I think you may take the beginning of Pasteur's discoveries which opened up the entire world of micro-organisms to science, — approximately the same era as our own Civil War.

It is impossible to overvalue the effect of the discoveries of Pasteur and his two great contemporaries and followers, Lister and Koch, upon the modern development of public health, or upon the greater security and comfort of life.

The opening era of great scientific discovery in the nature, cause, prevention and suppression of disease, especially pestilential disease, from 1860 to 1890, represents an entirely new experience for mankind; an experience of vast beneficial results which will ever increasingly be appreciated and will be felt for untold centuries long after the echoes of even the greatest and bloodiest of wars will have died away forever.

I only wish I had the ability to paint clearly a word picture of what this remarkable era signified. Suffice to say that it meant above all the escape of civilized man from the old doctrine of fatalistic acceptance of disease and pestilence as a manifestation of divine wrath. It meant a conception that even the most terrible of pestilences was born of natural causes, propagated by means and channels which would inevitably be made clear by scientific labor and research, and from their very nature could, if man was willing to pay the price in money, in labor, in self-sacrifice, be absolutely controlled.

Early in the unfolding of this wondrous story Pasteur broke forth in an inspired prophetic moment with his immortal phrase: "It is within the power of man to abolish the infectious diseases from the world."

II. The Concept of Public Health as a National Asset.

It is easy to prove that the results of our relatively imperfect application of public health principles have been a source of individual, community and national prosperity and greatness which can be fairly compared with the development of modern transportation and modern mechanical and electrical power as a factor in the amazing growth in wealth and resources and average human comfort that marks the present era. Nevertheless it is with extreme slowness that the concept that public health development is a tremendous community and national asset makes headway. That these measures which we designate by the general term "public health" mean the greater conservation and multiplication of our vital assets, using this term as contrasted with our material assets, is somehow a difficult thing for any of us to grasp.

Occasionally a statesman like Gladstone, or a political economist like Fisher, grasps this extremely important truth, *i.e.*, that entirely aside from the altruistic and humanitarian aspects of the movement the intelligent fostering of the public health is the most fundamental of all varieties of national insurance; but the majority of us almost never get this concept of public health. We think of it in terms of benefit to the individual, almost never in terms of the greater service to the common welfare that all the aggregate units of benefited individuals are in a position to render as a result of public health development. Yet any one who takes the trouble to do so can find that the longer we live on the average, and particularly the more of us who survive to the productive stage of life, the greater the prosperity of the Commonwealth.

The matter has even been reduced to comparative statements of the total capitalized value of our vital assets (*i.e.*, the average wealth-producing power of an American citizen, or British, or French, as the case may be) compared with the total capitalized value of our national assets in farms, forests, mines, factories and fisheries; and while any given basis of calculation in determining the capitalized prospective net worth to the Nation of a new-born baby may be subject to great dispute, yet that in the aggregate the cash value of our vital assets enormously outweighs the cash value of our material wealth no one can deny.

Thirty years ago a noted British economist estimated that the capitalized value of human labor in Great Britain, manual and mental, was worth at least five times all other capital.

Before the war estimates were made attempting to assign the money value of the average individual to the combined wealth of the Nation. This was on the assumed basis that one-quarter of the people of working age were not actually contributing to society but were being supported by it.

Up to fifteen years of age persons are an economic burden; then they become economic assets. On the now ridiculously low basis of $525 per year for the average earning power, it was computed over ten years ago that the average economic value of us all, our average economic net worth to the Nation, was $2,900; but even on this basis the economic value of our vital assets was calculated at $300,000,000,000. Five hundred billion dollars would be nearer the correct amount for to-day, with the proper allowance for the decreased value of the dollar and the increase of population.

III. SOME OF THE NET GAINS OF THE MODERN PUBLIC HEALTH MOVEMENT.

I approach this theme with a degree of trepidation; the danger of false emphasis here is very great, but it is essential that these gains be brought to your attention.

In the interests of truth and scientific justice it is highly important that you fix firmly in your minds that modern civilization is a complex from every angle, and it gives a very unfair impression to claim that all the gains in life prolongation and in bettered physique and greater physical comfort which this generation enjoys over our grandfathers are due exclusively to the development of public health administration or to the public health movement in its broadest possible scope. Economic factors are unquestionably of far greater fundamental importance.

Higher standards of living, and especially the greater development of food production resources and more efficient food transportation have had an incalculable influence upon the phenomena of the lowered death rate that this generation has lived through.

Yet it would be equally absurd to minimize the result accruing directly from the deliberate carrying into effect by governmental and private agencies of the principles which logically unfolded from Pasteur's discoveries.

Sanitary science, medical research and enlightened public health administration can exclusively lay claim to the abolition of yellow fever; to the curbing of malaria and hookworm; almost entirely to the marvelous reduction in death from typhoid fever; to the amazing manner in which the old time "scourges of God" — Asiatic cholera and bubonic plague — have been kept from gaining effective footholds in this country. Figures are always dull, but at the risk of boring you I feel compelled to offer just a few at this point, for in no other way can the achievement of our present period in life saving and life prolonging be explained.

In Massachusetts the average yearly death rate from all causes from 1885–88, inclusive, was 19.5 per 1,000 population; for 1920 the rate was 13 per 1,000. This means over 20,000 more lives prolonged, in comparison with the rate of about thirty years ago.

The infant mortality rate of Massachusetts in 1885 was 156; for 1919 it was 88. It means that whereas in 1885 a new-born infant had only a little better than one chance in six of living to celebrate a first birthday, now less than one child in ten dies under the first year, — a most creditable gain but still a fatality hazard much higher than we know to be necessary.

The death rate for pulmonary tuberculosis in 1885 was 220 per 100,000; in 1920 it was 96 per 100,000. It means that if the tuberculosis death rate had remained to-day what it was in 1885, in place of approximately 3,500 dying this year from consumption the number would have been over 8,000.

In 1885 the typhoid death rate of the Commonwealth was 39 per 100,000; in 1920 it was 2.5. This means that, whereas less than 100 people died from typhoid in 1920, had the same rate prevailed as in 1885, 1,560 would have died.

Equally remarkable comparisons can be made for diphtheria, scarlet fever and other contagious diseases.

It is astounding, however, how much of the gain in years which has come about for the average man and woman of to-day is due to victories over the communicable diseases, and how relatively little has been done yet through better popular appreciation or application of the laws of personal hygiene. It does not seem unreasonable to conclude that at least fifteen more years of active enjoyable existence could be added to the average lifetime by the intelligent application of sanitary laws already well understood.

IV. The Fundamental Human Existence Problems.

In my opening remarks I referred to certain fundamental problems of human existence. Let us now consider them. It must be in the merest skeleton outline (for each of them could easily be developed as the theme of several interesting addresses), merely to show how direct is the application of each of these fundamental racial problems and instincts to the public health question, and to observe how all our intricate problems of modern public health administration become simplified as to their significance and application to our daily lives by correlating them with these fundamental social problems from which they naturally spring.

As I have said the fundamental problems of human existence are the problems of —

(*a*) Food.
(*b*) Shelter.
(*c*) Defence.
(*d*) Racial propagation.

(*a*) *Food.* — From food comes a host of practical problems of present-day health work. For example, consider the problem of sufficient *quantity* of food for the Nation, the State, the community, as well as for each individual. Only recently has this oldest of all health problems, the avoidance of starvation, been called to our attention in various parts of the world. Useless are the teachings of the principles of modern hygiene in the face of the empty larder.

Without stopping to enlarge on this topic, tempting as it is to do so, let us enumerate some of the other aspects of the food problem in relation to public and private hygiene. The whole field of nutrition, a large share of infant welfare and school hygiene, dental hygiene, scientific cookery and a whole world of laboratory research open up as we contemplate the bearings of this problem which was just as acute to primitive man sallying forth to slay the now extinct great auroch as to the citizens of Great Britain in the submarine war, but no more so.

Or again, consider *quality* of food. Our whole great Division of Food and Drugs in the State Department of Public Health concerns itself over this, including supervision of milk supplies and cold storage; and a fact all too often overlooked is that the fundamental importance of the wonderful science of sanitary engineering is principally due to the necessity and difficulty of obtaining under conditions of present city life an abundance of pure water as part of our diet.

(*b*) *Shelter.* — In a similar manner consider shelter. Primitive man sought his in natural caves. Springing from the same racial problem come all the modern problems of housing, heating, ventilation, waste disposal, lighting, clothing, etc., with their far-reaching effects upon the public and private health.

(*c*) *Defence.* — This is a mighty problem in modern health development, — defence against the whole range and gamut of infectious diseases. What a myriad of specialized agencies we must invoke to-day to help combat this problem! Defence against violence and accident; against toxic and chemical agencies; all these problems of public health are involved in this one word. The whole great structure of industrial hygiene is an attempt to escape from the pressure of this old race problem.

(*d*) *Racial Propagation.* — Around this, at once a problem and an instinct, has grown up our whole modern problem of prenatal, obstetrical and postnatal hygiene. Eugenics, feeble-mindedness, social hygiene, all hark back to it.

V. The Three Eras.

In the development of the modern public health movement it will greatly aid our comprehension if we conceive it to have developed in three fairly definite eras or periods, always bearing in mind that by the use of these terms we simply indicate the shift of emphasis, not that all the problems of the earliest era in point of time were solved before the others began to grow in significance.

I will call these three periods —

(1) The Era of Sanitation. Roughly, from 1850 to 1880.

This era was principally concerned with environment. Its key word was "environment." Its typical exponent in the public health ranks was the sanitary engineer.

(2) The Era of Infectious Disease Work. It began roughly about 1870 and was in full sway largely overshadowing all other public health concepts for about thirty years.

This era was principally concerned with bacteriology. Its key word was "the germ." Its typical exponent was the laboratory research worker.

(3) The third era is just beginning. It may be called the Era of Hygiene. It marks a return to first principles.

This era is principally concerned with the human machine, the person. Its key word is "education." Its typical exponent is perhaps the public health nurse.

It greatly helps us to comprehend the present status of public health development to realize that both of the earlier of these eras accomplished great things; that at the height of their vogue many of their most eminent exponents seem to have largely confused their special and limited possibilities with those of the entire field of public health; and that they have fixed certain definite misconceptions upon the public mind that very greatly hamper the development of an intelligent concept of the significance of the health problem as a whole by millions of public-spirited people.

To the wonderfully beneficent results of modern water supply and sewage and waste disposal methods may partially be traced the persistence of the idea that filth in and of itself can create disease, especially communicable disease, with all the handicap this imposed upon the second era in getting a fair show to demonstrate what can be accomplished by the control of the germ.

To the very natural dazzling of men's eyes by the demonstrations of Pasteur, Lister and Koch; by the discovery of diphtheria antitoxin and its analogous biologic sera; by the clearing up of the puzzles of the ages as to how cholera, malaria, typhus, typhoid and a host of other infections spread; or by the flood of light thrown upon the awful problems of surgical and obstetric blood poisoning, clearly may be attributed largely the curious mental "blind spots" of the leaders of the era of the "germ" idea in public health development. Just as one cannot adequately "see the forest for the trees," so in the pursuit of the germ the person was overlooked, and in the late 80's and 90's the public health world became obsessed with the idea that the solution of practically all our health problems merely resolved itself into tracking the germ into its lair and extirpating it.

It is only very lately that we have fully realized that while the engineer's transit and the scientist's microscope have furnished contributions to the cause of public health that to-day result in millions walking up and down this earth who would under former conditions "sleep the sleep that knows no waking," nevertheless the great field for future development is in the enlightenment of the average man, woman and child.

There is obviously enough scientific knowledge extant, as I have previously stated, to enable us to prolong the average human life by many years, and to make all those average years infinitely more abounding with the joy of living that accompanies topnotch physical condition. The problem is to get that knowledge assimilated and put into practical use by every one.

VI. The Present General Objectives of Modern Public Health Administration.

It will perhaps suffice merely to enumerate these objectives, or at least the major ones: —

(1) *Eugenics.* — At least on the negative side, much can be hoped for in this field. It is probably unreasonable to expect that a race will ever mate on positive eugenic grounds. It would probably be a dull world if our posterity ever did. But to educate our young generations so that racial defects, such as feeble-mindedness, will be gradually eliminated by the intelligent avoidance of such marriages does seem to me to be within the bounds of achievement of modern sanitary educational methods.

(2) *Better maternity hygiene.*

(3) *Furtherance of infant welfare.*

(4) *Development of school hygiene, including physical education.*

(5) *Development and intelligent appreciation of mental hygiene.*

(6) *The still better control of the sanitation of environment* — water supply, sewerage, housing and elimination of noxious insects.

(7) *The Control of Infectious or Communicable Diseases.* — This is still the greatest of our objectives, perhaps, but by no means so dominant in the makeup of modern health machinery as formerly was the case, for we have come to realize better what vast public health significance is to be found in the above and in such fields as —

(8) *Industrial hygiene.*

(9) *Nutrition and food assimilation.*

(10) *Personal hygiene.*

This list is far from complete; it does not enumerate all of the important subdivisions of the public health field, but I think it does specify practically all of the most important great divisions.

VII. CERTAIN DIFFICULTIES.

Certain difficulties in our problem must be faced and combated. Some of these are: —

(1) The instinctive ignoring or denial of disease by the healthy person.

(2) The overmorbid dread of disease.

(3) The lack of the dramatic in health work and the difficulty in making people believe after you "prevent" something that it would have happened if the preventive measures had *not* been taken. There is also necessity of admitting in many instances that we have no means of telling whether it would have happened or not if no preventive steps had been taken.

(4) Failure to appreciate how old human nature is and how young the modern public health movement is by comparison; hence failure to appreciate how revolutionary these concepts are, and how great the unreasonableness of expecting popular superstitions and prejudices of centuries to fade out and be replaced by complete appreciation of the principles of sanitary science on the part of the average individual without ever teaching him these principles.

It is of vital necessity that widespread popular education in health matters be considered of paramount importance in the future.

(5) The difficulty of translating the cold figures of public health results in the mass into the warm appreciation of what these things mean in terms of the welfare of the individual. This problem has been beautifully expressed by Elizabeth Barrett Browning in one of her poems: —

> A red haired child
> Sick in a fever, if you touch him once,
> Tho but so little as with a finger tip
> Will set you weeping; but a *million* sick —
> You could as soon weep for the rule
> Of three or compound fractions.

ORAL HYGIENE AS APPLIED TO A GENERAL HOSPITAL.

By Frederick E. Cruff, M.D., Resident Physician, Massachusetts Homœopathic Hospital.

THROUGH the co-operation and courtesy of Dr. Harold DeW. Cross and Dr. Richard H. Norton of the Forsyth Dental Infirmary, the Massachusetts Homœopathic Hospital has been privileged to take up the work of oral hygiene and prophylactic treatment of the mouth as applied to all its cases.

The work, as it is at present conducted, consists in having the house officers list cases they wish treated, these cases then being examined and treated by dental hygienists from the Forsyth Dental Infirmary. These hygienists clean the teeth, give toothbrush drills, and massage gums, and then report the condition of the patient's mouth, suggesting any necessary further treatment.

Up to the present time the total number of cases that have been examined is 408, 16 of these having been found too ill for treatment. It is interesting to note that only 8 have refused treatment.

The results aimed at have been several: in obstetrics, for example, it is a known fact that many women of a certain class feel that after they have had three children they will have lost their teeth. Why is this? Because during pregnancy the teeth are so often neglected and allowed to decay. This can be prevented by dental care during pregnancy, which is one of the things we are trying to institute. Up to the present, 84 cases in the prenatal department have received dental care and instructions as to the care of the teeth. This factor of the care of teeth during pregnancy is a very important one from the educational standpoint. Many women hold the erroneous belief that it is unsafe to have the teeth worked on during pregnancy. If they can be shown that it is not only safe but desirable, we shall have gone far in preventing the loss of teeth and the many diseased conditions which result from poor teeth and mouths infected with pyorrhea.

The next result sought for is the instruction of children in the care of the teeth in order that they may be started in the proper way. Many times after faulty dental conditions have been corrected a child who has shown marked digestive disturbance will regain his appetite and improve greatly. To this end 86 children have received oral treatments and instructions, which it is to be hoped they will still follow after they go to their homes.

Another result hoped for is the prevention of bronchitis and pneumonia which sometimes result from the inhalation of septic material about faulty teeth during the course of ether anæsthesia. As a preventive measure it is highly desirable to have the mouth and teeth in the best possible condition prior to anæsthesia. On the other hand, however, the presence of irritating substances in ether plays a part in the production of bronchitis and pneumonia in that these substances lower the local resistance of the respiratory mucous membranes. Some time ago it was found that there was more bronchitis following ether anæsthesia than was desirable. Consequently, the chemical analysis of the ether used was begun by Dr. Allan Winter Rowe in the laboratories of the Evans Memorial. These analyses showed that the ether, causing the respiratory irritation, contained peroxides and aldehydes. Further, it was found that ether, free from these contaminants, produced less respiratory trouble. Also, it was found that ether stored for more than three months might be rendered unfit for use, due to the catalytic activity of the containers. Resulting from this investigation, all ether used for anæsthetic purposes in this hospital is first submitted to chemical analysis. With these two factors controlled, namely, contaminated ether and infected mouths, there is less lowering of the local resistance of the respiratory mucous membrane and less septic material available for inhalation, resulting in fewer bronchial complications following anæsthesia. The foregoing remarks apply to all surgical cases, but it holds true particularly of nose and throat work in which it is most important that the oral cavity be as clean as possible before operative measures are undertaken. The incident of lung abscess following tonsillectomy would no doubt be lower than it is at present if more attention were given to the mouth and teeth before operation.

As regards the results obtained in other departments, such as orthopedic and medical, it is a self-evident fact that focal infection of the mouth plays a large rôle in orthopedic conditions. Many cases of infectious arthritis have been cleared up through the agency of dental prophylaxis and treatment. In medical cases, also, the care of the mouth and prophylactic dental treatments are valuable. First of all, a clean mouth may have a tendency to prevent communicable diseases of the respiratory tract. Then, too, many of the vaguely indefinite digestive symptoms may be alleviated by oral hygiene, because if the teeth are put in good condition they are more capable of proper functioning, thus rendering food in better form for digestion and utilization.

In conclusion, viewed from the standpoint of education, oral prophylaxis is extremely valuable, because by means of such treatment the attention of the patient is called to the fact that teeth do need care. He is shown how to care for them himself, and after he leaves the hospital will, it is hoped, continue to carry on the work started there. Thus the work of oral hygiene as carried out in a general hospital has its place as a measure of good when looked at from a preventive, therapeutic and educational aspect.

THE QUEST FOR THE FOUNTAIN OF HEALTH.[1]

Scenes.

Out of Doors.

Characters.

Peggy — pale, fragile girl of about nine years.
Paul — pale, thin boy of about eleven years.
Robin — girl.
Small Robins — two tiny children, girls or boys.
Speckle Hen — girl.
Chickens — four tiny children, girls or boys.
Tabby Cat — girl.
Sport — boy in collie dog costume.

Protein Foods.

Captain Milk — boy.
Charlie Cheese — boy.
Montie Meat — boy.
Freddie Fish — boy.
Eddie Eggs — boy.

Minerals.

Captain Milk — boy.
Annie Apple (representing fruits) — girl.
Carrie Carrot (representing vegetables) — girl.

Energy Foods.

Captain Milk — boy.
Bobbie Butter — boy.
Billie Bacon — boy.
Peter Potato — boy.
Rollie Rolled Oats — boy.

Vitamines.

Captain Milk — boy.
Ollie Orange (representing fruits) — girl.
Lottie Lettuce (representing green vegetables) — girl.
Eddie Eggs — boy.

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[1] Copyright by Mildred E. Dallinger, 1921, New England Dairy and Food Council.

Wise Owl — boy or girl.
Bossy Calf — boy or girl.
Buttercup Cow — girl.

Note. — The same boy plays the part of Captain Milk throughout. If it is desired to increase the number of characters taking part, more small robins and chickens may be added, as well as more food characters.

Scene 1.

(*Peggy sitting on piazza listlessly watching clouds. Paul enters tired and dejected. Sits down to rest.*)

Peggy. Why, what's the matter, Paul? You look all tired out!

Paul. I just had another race with David. He beat me again! I'm discouraged. I couldn't keep up at all. I had to stop!

Peggy. Oh, that's too bad! I didn't have a very good time to-day, either. Mary Jane looked so pretty and danced for a long time and was not a bit tired. I danced about a minute and then had to sit down.

Paul. I wonder what we can do to be like other boys and girls. I do want to be able to keep up with David.

Peggy. (*With surprise, pointing.*) Oh, look, Paul, those clouds are forming words! What are they? Seek — the —

Paul. (*Jumping up.*) Seek the Fountain of Health!

Peggy. (*Also jumping up.*) The Fountain of Health! What do you suppose that is and where can we find it?

Paul. Watch! The clouds may tell us. (*Pause.*) No. They are going away. Well, we must search, for I do want to be strong and well. I want to be able to play a good game of ball without having to drop out in the middle of it!

Peggy. And I want to have nice rosy cheeks, and I want to be able to dance and play like Mary Jane.

Paul. Let's go to bed now and get up early and see if we can't find the Fountain of Health.

Scene 2.

(*Peggy and Paul enter right, walking slowly. Robin enters left, followed by two Small Robins walking slowly.*)

Robin. Follow me! Follow me!

Peggy. Look at Robin Red-Breast. What does she say?

Paul. She wants us to follow her. Let's do it.

Robin. Follow me! Follow me!

(*Children follow about stage slowly.*)

Robin. We are going to have our daily morning bath.

Paul. I hate baths, especially when my ears are scrubbed.

Peggy. I'll bet the water is cold.

Robin. We all have a nice bath every morning, and we always drink plenty of water before starting out to hunt for our breakfast. It helps keep us well. Why don't you try it?

Peggy. We are searching for the Fountain of Health. Did you ever hear of that?

Robin. No, I can't say that I have; but I know that a bath every morning and plenty of water to drink keep us healthy.

Paul. (*With disgust.*) Oh, we are children, not robins! Let's go on.

(*Robins come to front of stage and sing song.*)

Music: "Tirra-Lirra-Lirra" (found in "Rote Song Book;" words by Frances E. McColgan).

Little robin redbreasts, we are three,
  Singing all the day so merrily;
We are just as happy as can be,
  Little robin redbreasts three.

The little robin redbreasts here you see,
  Take their daily bath quite cheerfully,
If you do the same, you soon will see,
  How happy, well and strong you'll be.

(*Robins dance off stage. Children walk along slowly. Enter Speckle Hen slowly.*)

Speckle Hen. Good morning, children. Would you like to see my family?

Paul and Peggy. Yes, thank you. Where are they?

Speckle Hen. Come with me.

(*Enter four Chickens, each carrying bowl of bread and milk. Sit down and eat, face to audience.*)

Peggy. What are they eating?

Speckle Hen. Bread and milk. Did you never hear that milk-fed chickens are the best? That is what I feed my children. It is good food and helps to make them strong.

Paul. Do you know where we can find the Fountain of Health?

Speckle Hen. Never heard of it; but I know that bread and milk is a good fountain of health for my children.

Peggy. (*With disgust.*) Oh, gee! We never have bread and milk at our house.

Speckle Hen. Probably you would look more healthy if you did. Bread and milk are good foods for anybody.

(*Chickens finish eating and do a dance. Children sit down under tree, front of stage, as chickens dance off right. Tabby Cat enters left. Goes and sits by Children, licking paws.*)

Tabby Cat. Good morning, children. I am washing my face and paws well because soon I shall have my mid-morning lunch.

Peggy. What is that to be?

Tabby Cat. A nice saucer of milk.

Peggy. (*Whining.*) Is that all? How tiresome! Every one is talking about milk.

Paul. And do you wash yourself just for that?

Tabby Cat. Certainly. Every one should wash his face and hands before eating.

Peggy. Do you always have milk in the middle of the morning?

Tabby Cat. Yes, and I think it would be a good thing for you, too. You do not look very strong and healthy.

Paul. (*Boastfully.*) We don't drink milk. We don't like it.

Tabby Cat. I never heard of any one who didn't like milk. You'd better go to the Food Pageant and see what Captain Milk does there.

Peggy and Paul. (*Excitedly.*) The Food Pageant! What is that?

Paul. We are hunting for the Fountain of Health. Could we find that at the Food Pageant?

Tabby Cat. I don't know; but Captain Milk may know. You'd better go to the Pageant and ask him.

(*Enter Sport running. Tabby Cat goes behind tree quickly.*)

Paul. What's your hurry?

Sport. I am having my daily exercise before going to the Food Pageant for lunch. Every one should exercise for at least one hour out of doors every day.

Peggy. Will you take us to the Food Pageant?

Sport. Yes, but you must run fast to keep up with me.

Peggy. Oh, but we can't run.

Sport. Why, what's the matter? (*Looks at children intently.*) Oh, but I see! You are not very strong and healthy looking. Well, I'll run along ahead and return every now and then to see that you are on the right path.

(*Sport runs right. Tabby exits left. Children follow Sport slowly around stage and out.*)

SCENE 3.

(*At curtain Children and Sport sitting under tree at right of stage toward front. Enter slowly from left the Protein Foods. Captain Milk goes to front of stage, pronounces his name very slowly and distinctly, then steps to one side. Each of the Protein Foods does the same thing. When all five are on the stage, they do arm and leg exercises or oxen dance.*)

PAUL. Who are they?

SPORT. (*Standing and facing audience.*) Those foods all make muscle, but you see that Milk is captain. If you have a quart of milk and an egg a day, you do not need fish or meat that same day. These foods are called Protein, which means muscle builder.

PEGGY. Listen to what they are saying!

PROTEIN FOODS. (*In unison or Captain Milk alone. Point to muscle.*)

We are called the Proteins,
  Muscle makers we,
And the leader of us all
  Is Captain Milk, you see.

(*Protein Foods march to back of stage, except Captain Milk, who goes left so as to be ready to come forward with the Minerals who enter slowly, one at a time. Each goes to front of the stage and speaks slowly and distinctly. Enter in the following order.*)

ANNIE APPLE. I am Annie Apple and represent fruit. All fruits are good for you.

CARRIE CARROT. I am Carrie Carrot and represent vegetables. All vegetables are good for you.

CAPTAIN MILK. I am Captain Milk.

(*All stand at front of stage.*)

SPORT. These are Mineral Foods which give you strong bones and teeth.

(*Mineral foods sing.*)

Tune: "Auld Lang Syne."

If you would have strong healthy bones,
  Or pearly teeth desire,
Make us your friends; eat us each day;
  Of us you'll never tire.

(*Captain Milk stands a little to one side while girls do a fancy dance. Carrie Carrot and Annie Apple go to back of stage. Captain Milk goes* *left. Energy Foods enter slowly, one at a time. Each goes to front of stage and pronounces his name very slowly and distinctly. Enter in this order: Bobbie Butter, Billie Bacon, Peter Potato, Rollie Rolled Oats, Captain Milk. When all are on the stage stand in a line.*)

SPORT. These are Energy Foods and give you power to work and play.

(*Energy Foods sing.*)

Tune: "Auld Lang Syne."

Fat, sugar, starches we contain
  To give energy and heat.
We'll help you play and work real hard
  If lots of us you'll eat.

(*Captain Milk leading, all turn and march around stage twice, saluting Peggy and Paul as they pass; stop at back of stage, except Captain Milk, who goes left. Enter Vitamines, one at a time. Each goes to front of stage and speaks very slowly. Enter in the following order.*)

EDDIE EGGS. I am Eddie Eggs.

OLLIE ORANGE. I am Ollie Orange and represent fruit.

LOTTIE LETTUCE. I am Lottie Lettuce and represent green vegetables.

CAPTAIN MILK. I am Captain Milk.

SPORT. These are the Vitamines. They make you grow and help to keep you healthy.

(*Vitamines sing.*)

Tune: "Auld Lang Syne."

In us the Vitamines you find,
  And so important are we,
To make you grow up big and tall,
  And strong as strong can be.

(*Fancy dance may include all, or boys may stand one side while girls dance. After dance all go to back of stage. Captain Milk stands in center of stage.*)

PEGGY. My, but this is interesting! Sport, tell me, should we eat all those foods?

SPORT. Yes, they are all good. Choose some food from each group every day, but eat at the same meal only the foods which are friendly to each other. Look!

(*Milk, Egg, Potato, Lettuce, Apple come to front of stage. All take hold of hands. Milk in center. May dance if desired.*)

SPORT. Those foods are all friendly. They will make a good luncheon for you. You see each group is here represented.

(*All Foods march off slowly.*)

PAUL. Captain Milk is leader of all the food groups, isn't he?

SPORT. Yes, he is the Captain of all Foods.

PEGGY. (*Regretfully.*) Why didn't I ask him about the Fountain of Health?

SPORT. (*Springing up.*) Wait, I'll try to catch him.

(*Enter Wise Owl.*)

OWL. Aren't you tired? Wouldn't you like a nice nap?

CHILDREN. Yes.

OWL. Then lie down under this tree. It is good for children to rest after meals.

(*Children lie down and fall asleep. Enter Robin; sings "Sweet and Low" or other lullaby; exit Robin. Children sit up, rubbing eyes. Owl standing by.*)

OWL. I have watched over you. You look better already. Why not have a rest after every meal?

PAUL. We might, but we are looking for the Fountain of Health.

(*Enter Bossy Calf.*)

OWL. Well, here is Bossy Calf. Perhaps he knows where it is.

(*Exit Owl.*)

PEGGY. Can you tell us where to find the Fountain of Health?

(*Bossy Calf stands front of stage and speaks slowly.*)

BOSSY CALF. Of course, it is my mother! She is the dairy cow, the Foster Mother of the World! The Fountain of Health! She eats grass and hay and makes Milk, the Captain of all Foods.

CHILDREN. Hurrah, we are at the end of our journey. Now we shall be strong and well. Take us to the Fountain of Health and get us some milk to drink.

(*Enter Buttercup, front of stage.*)

Welcome, little boy and girl,
  I'm glad you've come to me,
For I can tell, you need my help,
  If strong you want to be.

The many friends you've found to-day
  Have done their very best
To help you on the road to health,
  But you must do the rest.

Remember what these friends have said,
  And keep it in your mind,
For then you'll keep right on health way
  And never lag behind.

For all the friends you've made this day
  Are worth more to you than wealth,
And don't forget your last found friend,
  The Cow, — the Fountain of Health.

(*Enter all characters, form semicircle around stage. Buttercup, Peggy, Paul and Captain Milk should stand in center of semicircle. When all are on stage Robin comes to front of stage and holds sign high. All sing.*)

Tune: "Yankee Doodle."

Soap and water are good for all,
A bath every day is fun,
But if you have one three times a week,
You'll always feel clean and wholesome.

(*Robin steps one side as Small Robin comes forward holding sign high. All sing.*)

Tune: "Yankee Doodle."

A glass of water when you get up,
  Another glass at bedtime,
Drink water often between your meals,
  For it doesn't cost a dime.

(*Small Robin steps aside as Sport comes foward to center of stage. All sing.*)

Tune: "Good Night, Ladies."

Play out doors, children,
Play out doors, children,
Play out doors, children,
An hour at least every day.

(*Sport steps aside so that Tabby Cat may have center of stage as she comes forward holding sign high. All sing.*)

Tune: "Good Night, Ladies."

Wash your hands, children,
Wash your hands, children,
Wash your hands, children,
Always before you eat.

(Rollie Rolled Oats comes forward. All sing.)

Cereal and milk, children,
Cereal and milk, children,
Cereal and milk, children,
For breakfast every day.

(Carrot comes forward. All sing.)

Eat vegetables, children,
Eat vegetables, children,
Eat vegetables, children,
Some vegetables every day.

(Orange comes forward. All sing.)

Tune: "Yankee Doodle."

Fruit is good for boys and girls,
Fruit for all is handy,
Spend your pennies for oranges,
And do not think of candy!

(Owl and Speckle Hen come forward. All sing.)

Girls and boys need plenty of sleep,
And a good rest after dinner,
It will make you feel so strong and well,
Each one will be a winner.

(Captain Milk comes forward and stands center. Sings alone or all sing.)

Milk makes muscle, milk makes bone,
Milk makes children healthy,
For all to have nice rosy cheeks,
Is better than being wealthy.

(All sing.)

Tune: "Good Night, Ladies."

Drink milk, children,
Drink milk, children,
Drink milk, children,
Three glasses every day.

(All sing.)

Merrily we dance along,
Dance along, dance along,
Merrily we dance along,
Seeking strength each day.

(*All characters join hands and leave stage slowly, those holding signs being last to leave. Song may be repeated until all have left stage.*)

Robin carries slogan: "Have a bath three times every week."
Small Robin carries slogan: "Drink six glasses of water every day."
Sport carries slogan: "Play out of doors at least an hour every day."
Tabby Cat carries slogan: "Wash your hands before eating."
Rollie Rolled Oats carries slogan: "Eat cereal and milk every day."
Carrie Carrot carries slogan: "Eat some vegetables every day."
Ollie Orange carries slogan: "Eat some fruit every day."
Owl carries slogan: "Rest after meals."
Speckle Hen carries slogan: "Sleep long hours at night with windows open."

Captain Milk carries slogan: "DRINK THREE GLASSES OF MILK EVERY DAY."

NOTE. — In order to make this play successful and to get over its message, it is most important that the children speak slowly and distinctly. As each comes on the stage, he should pause before speaking, so that the audience may see the costume and comprehend what it signifies.

The New England Dairy and Food Council at 51 Cornhill, Boston, will be glad to furnish costumes for organizations that desire to give this play. The only expense will be express or transportation.

A SUCCESSFUL HEALTH CONTEST FOR SCHOOL CHILDREN.

BY HELEN M. CHELLIS, R.N., PUBLIC HEALTH NURSE, BEDFORD, MASS.

AS every teacher and school nurse has discovered, the successful teaching of health habits to school children calls for a variety in method and a spirit of rivalry.

We have utilized all sorts of games, contests and crusades in our campaign for more healthful habits of living among our pupils in the elementary grades. By way of variety during the last two months, we have used with favorable results the following scheme.

Each room is divided, by lot, or choice by captains, into two companies. The officers are two captains and one general — the teacher. The general's duty is to award the stars as the captain reports the condition of each man in his company, and to settle disagreements, if necessary.

The captains must first pass inspection before the general, and then inspect their men.

One merit each is counted for —

Clean hands and face.
Clean finger nails (not accepted if bitten).
Neat shoes.
Neat hair.
Clean and orderly desks.

Well-chosen captains soon learn to make inspection carefully and thoroughly in a very few minutes.

At least three merits must be earned to win any point. Three merits win a blue star, or 1 point toward weekly score; four merits win a red star, or 2 points; five merits win a silver star, or 3 points.

At the end of the week each man's points are summed up in the score column, and the total recorded for the company.

The winning side is awarded a large 6-inch gold star, hung by a hooked card holder from the lower edge of their score card. This is retained until won by the opposing company. The star is made of gilt paper mounted on cardboard.

At the end of four weeks' period the weekly scores are totaled. At this same time two small gold stars may be won by each man. These count 5 points each, and one stands for normal weight and height, and the other for clean teeth free from cavities.

They are awarded by the school nurse, who inspects the teeth and weighs underweight children on the closing day of the contest.

If signed applications for treatment at the school dental clinics have been made, a star is given to such child even though his turn in clinic has not arrived.

The total points for these stars are added to the total weekly score, and the results for the two companies compared.

The victors own the banner, which stands guard beside their score card until lost in a succeeding contest.

The inscription and color for this banner is suggested and voted upon by the entire room. Such names as these were chosen: Health Militia, Health Fairies, A. C. Club (always clean), Health Winners, etc.

One afternoon an enthusiastic group of children — two from each grade in the building — met with the nurse and teachers to make those banners. In some rooms these delegates were chosen by the children. In others, the teachers used that honor as a reward for neatest papers and blackboard work.

Gilt paper letters were cut from letter models by the pupils and pasted on to double cambric banners of varying colors and shapes. A sewing machine and flatiron were available and greatly facilitated the work.

The banners were finished with a small rod at the top and hung vertically by gold cord to 6-foot standards, previously constructed by some boy in each class.

Materials, such as cardboard for charts, stars, banners, etc., are provided by the Parent-Teacher Association.

These contests have been enthusiastically carried on by the pupils of the second to seventh grades. With a little practice, it takes very little time after the opening exercises.

In this way we are able to check up the daily condition of the children, and, in addition, health habits must be practiced if a pupil is to win the five-point gold stars.

Teeth cannot be sound and free from stains unless they are faithfully brushed, and the school or family dentist has been visited. Class-room talks on oral hygiene, toothbrush drills, provision of paste and inexpensive brushes, all aid the children to this goal.

All our nutritional work, hygiene talks, games, songs and drills, hot lunches, monthly weighing contests with home reports, and follow-up home visits in connection with physical examinations have an influence on the efforts to earn a star for normal weight.

We find that many children voluntarily ask for application slips to the dental clinic, or more cheerfully accompany their parents to the family dentist; that boys are buying pocket combs, and refusing to play games before school which will soil their clean nails; and that mothers find it easier to serve oatmeal and vegetables successfully.

We shall be glad if this little scheme proves of any help to some other worker seeking a slightly different method of carrying on the endless but satisfying task of health habit formation among our beloved school children.

THE COMMONHEALTH.

BIMONTHLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
Room 546, State House, Boston, Mass.

The Hygiene of Maternity and Infancy. — After years of discussion, Congress has at last passed a maternity bill. The Sheppard-Towner bill is now the act for the promotion of the welfare and hygiene of maternity and infancy, and is part of the law of the land. Many of us have doubted the wisdom of Federal subsidies; many of us have wondered just how much could reasonably be expected by such an act. Now, we must all unite to do one thing, — to demonstrate what can be done with such an act.

We should at the very outset, however, give serious consideration, which has hitherto been lacking to a great degree, to the problems involved. We are undertaking to buy not groceries or shoes but human lives, and the one thing is not the same as the other. It is our job to do something which we may as well recognize has never yet been accomplished on any State-wide basis anywhere in the world. There is ample evidence, however, that it has been accomplished in certain cities. We must reduce the death rate among mothers and among the new-born babies as well as among the older babies. The latter is by far the easier part of our problem. Difficult as the whole problem is, it is one which each State must have on its conscience.

The methods employed in attacking the problem will, it is to be expected, vary in the future as in the past. But so far as the maternal and early infant death rates are concerned, our hopes must be based chiefly upon getting the mother, early in her pregnancy, to a competent physician. As was shown clearly by the investigation of the special legislative commission in Massachusetts, mothers are dying largely because of ignorance, not largely because of poverty or housing conditions or inability to obtain medical or nursing care. Many mothers will not go to the family physician early enough because they do not realize the need of the physician's advice during the prenatal period. Many will not have adequate medical care for their babies because they do not realize the need of it.

Therefore, any plan for reducing the maternal and infant mortality and morbidity should include as a minimum a broad educational program; provision for stimulating private and municipal activity along the lines of better medical, nursing and hospital care; and, fully as important as anything else, more research into the factors underlying the maternal and infant mortality about which at present we know far too little. Nevertheless, it will be a great misfortune if the new activity bound to follow soon operates to weaken to any degree the sense of responsibility which ought to animate even the smallest communities with regard to the health of their mothers and infants.

Advisory Committee. — The Division of Hygiene has asked the co-operation of twelve State-wide lay organizations for the purpose of securing co-ordination among the various forces, aside from professional organizations active to-day in public health work in the State. This group of representative persons constitutes an advisory committee, and its functions will be to accumulate information and to develop resources along each of its various lines of endeavor, these resources to be made available to any community in the State planning to hold a health demonstration of any sort.

The organizations represented by this committee are the following: —

Parent-Teacher Association.
Massachusetts Federation of Teachers.
State Federation of Women's Clubs.
Massachusetts League of Women Voters.
Massachusetts League of Girls' Clubs.
Girl Scouts.
Women's Christian Temperance Union.
Council of Jewish Women.
Massachusetts Council of Catholic Women.
Massachusetts Association of Directors of Visiting Nurse Associations.
Massachusetts Federation of Churches.
Free Public Library Commission.

The individual representative in most instances is the State chairman of the health committee of the organization.

The plan under which the committee purposes to work is as follows: A given community feels a need for some form of public health activity, and, as a step towards securing general interest in the program and in health matters in general, a committee is chosen to arrange for a health week or perhaps only a health day. It may reasonably be assumed that every organization, official and unofficial, in that town will lend its energy to further the success of that health week and, as far as is possible, each will co-ordinate its forces with the others to accomplish the desired result. It may be, however, that, when the committee begins to outline its program, it is discovered that much of the exhibit material available in the State is being concentrated at that particular time in another section. In addition to the exhibits themselves, the attention of various professional health organizations is for the time focused in another direction where its personnel is also engaged; hence, the town in question is obliged either to change its dates or to limit the sphere of influence of its health campaign.

Again, few persons, except those who have had previous knowledge of the health education resources of the State, realize how long a time in advance it is necessary to make arrangements for a health demonstration in order to obtain the full benefit of available resources. If the local committee appointed for the development of a health campaign could come into personal touch with members of a central committee, a large proportion of the available material might be concentrated for use in a given place in co-ordination with other resources. To furnish this opportunity for personal contact is one of the objects of the advisory committee.

Several of the State organizations have outlined comprehensive health programs in which both official and private agencies are given due consideration. At the time when a health demonstration is planned in a city or town, the working out of these programs would undoubtedly be made more effective if, through informal conference in a central committee, the activities of each particular organization in one community were to a certain degree correlated with those of another place near by. The experience gained by one community could, moreover, be made use of by the next.

Another point not to be overlooked in the growth of such a co-ordinating group of lay organizations is the development that will inevitably come to each member organization through working shoulder to shoulder with other members of the group facing identical conditions; and in its friendly association with local communities in building up their health programs each organization must find new opportunities for the development of its own resources.

This committee holds itself subject to call on the request of any committee which voices the united desire on the part of a community for the counsel and assistance of these twelve State-wide organizations in planning or carrying out a health program. — M. R. L.

Join the American Child Hygiene Association. — The twelfth annual conference of the American Child Hygiene Association, which was held in New Haven, November 2 to 5, was well attended and was one well worth attending. The association has been broadening its scope greatly during the last few years, and now seems the logical medium through which all phases of child health activity may find expression. It is an unfortunate tendency in American life which leads us to multiply organizations, committees, subcommittees, meetings of all sorts. Committees from various organizations, entirely without reference to each other, consider the same subject and duplicate study.

It is of course hard to draw the line between necessary subdivision and unnecessary duplication. Francis Bacon took all knowledge to be his province, but nowadays all knowledge is a pretty wide field and, of course, out of the reach of any one group of individuals. It seems not unreasonable to suppose, however, that one association could adequately handle the whole problem of child health from the preventive point of view. Much would be gained by concentrating in one group obstetricians, pediatricians, public health nurses, health officers, social workers, those interested in the health of the school child, those interested in his physical education, and the interested layman.

Those who believe this to be true should affiliate with the American Child Hygiene Association.

Public Health Conferences. — A series of weekly conferences dealing with some of the leading phases of public health was completed on November 30 by a discussion of "The Control of Communicable Diseases," led by Dr. Bernard W. Carey, and of "The Federal State Program for the Control of Venereal Disease," under the leadership of Dr. Claude C. Pierce of the United States Public Health Service.

These conferences have been very well attended, and from first to last have been marked by an obvious and serious desire on the part of those attending them to come into closer touch with the authorities charged by law with the protection of the public health, and to lend their aid in the carrying out of a modern twofold program of the prevention of disease and the upbuilding of a better race, — a race which shall not again be found wanting in physical perfection as was the present generation at the time of the draft examinations.

The fulfillment of the public health program of the future cannot be looked for without the support and full co-operation of an enlightened public, of the people knowing their own minds and seeking the means by which to co-ordinate local effort with the general program of the constituted authorities toward the improvement of health conditions and the preservation of child life.

In response to numerous requests two additional conferences in this series were held on December 5 and 12 for the discussion of (1) "The Care of Maternity and Infancy," a subject of vital importance at present owing to the recent enactment of the so-called Sheppard-Towner act; (2) "School Hygiene," which is developing with great rapidity in this State at the present time on account of the adoption of the school nurse law, and which was passed by the General Court during the last session of the Legislature. A demonstration was given of the various educational resources offered by the Division of Hygiene of the State Department of Public Health.

Books on Health Subjects. — The following list of eleven books on health subjects has been selected as covering the most important phases of public health expressed by well-recognized authors. We recommend that these eleven books be placed on the shelves of every town and city library in the State as a nucleus for a larger collection.

1. "Health and Disease." Roger I. Lee. Little, Brown. $2.50.
2. "The New Public Health." H. W. Hill. Macmillan. $1.60.
3. "The Health Master." Adams. Houghton, Mifflin. $2.
4. "The Human Factor in Industry." Lee K. Frankel. Macmillan. $3.
5. "Public Health Nursing." Gardner. Macmillan. $2.60.
6. "Dietetics for High Schools." Gillett & Willard. Macmillan. $1.50.
7. "Feeding the Family." Rose. Macmillan. $2.40.
8. "Everyday Mouth Hygiene." Joseph Head. W. B. Saunders. $1.
9. "The Prospective Mother." J. M. Slemons. Appleton. $2.
10. "The Baby's First Two Years." Smith & Green. Houghton, Mifflin. $1.25.
11. "A New Conscience and an Ancient Evil." Jane Addams. Macmillan. $1.50.

In Memoriam

When Life

has endowed one with:

A quick mind to grasp the special science of his profession,
A clear eye to detect the approved recent advancement,
A gifted tongue that carries conviction,
A profound knowledge of human nature,
A magnetic personality,
Enthusiasm, born of sincerity,
Tact, coupled with optimism,
Firmness, associated with justice,

those around him find such an existence so indispensable as to believe it perpetual.

William J. Gallivan

was the apostle of prevention, the prism through which the spectrum of sanitary sciences would reach the masses in the form of principles and practices of healthful living.

When Death

snatches, in a moment, such a powerful force, the shock, in the Department of Public Health, is all the more severe; the vacuum, the more bewildering; the regret, the more lasting. That others may not forget, the Public Health Council dedicates this page of its records to the loving memory of a loyal, genial and devoted companion.

OPINION OF THE ATTORNEY-GENERAL.

The Commonwealth of Massachusetts,
Department of the Attorney-General, Boston, Sept. 21, 1921.

Eugene R. Kelley, M.D., *Commissioner of Public Health.*

Dear Sir: — You ask my opinion whether regulations made by local boards of health under the provisions of St. 1921, c. 303, come under the provisions of G. L., c. 111, § 31, requiring approval by the Attorney-General before they become effective.

St. 1921, c. 303, is entitled "An Act regulating the manufacture or bottling of certain non-alcoholic beverages." It amends G. L., c. 94, by inserting after section 10 and under the heading, Non-Alcoholic Beverages, five new sections, 10A to 10E, inclusive.

Section 10A authorizes local boards of health to grant permits to engage in business. Section 10B requires them to examine the premises of persons having permits. Section 10C requires materials used to be uncontaminated and wholesome. The remaining sections are as follows: —

> Section 10D. The department of public health and local boards of health may make rules and regulations to carry out the three preceding sections.
>
> Section 10E. Any person who engages in the business of the manufacture or bottling of carbonated non-alcoholic beverages, soda waters, mineral or spring waters without the permit provided for in section ten A or who violates any provision of sections ten A to ten D, inclusive, or of any rule or regulation made thereunder, shall be punished for a first offence by a fine of not more than one hundred dollars and for a subsequent offence by a fine of not more than five hundred dollars.

G. L., c. 111, § 31, is as follows: —

> Boards of health may make reasonable health regulations which shall be published once in a newspaper if one is published in the town, otherwise in a newspaper published in the county. All regulations made hereunder which provide a penalty for violation thereof shall, before taking effect, be approved by the attorney general. Such publication shall be notice to all persons.

Said chapter 111 relates to "Public Health," and sections 26 to 32, inclusive, of that chapter are under the heading "City and Town Boards of Health."

In the Revised Laws the corresponding chapter is chapter 75, entitled "Preservation of the Public Health," of which sections 9 to 15 are under the heading "City and Town Boards of Health." Section 14 of said chapter, as amended by St. 1914, c. 90, is as follows: —

> The board of health of a town shall publish all regulations made by it in a newspaper of its town, or shall post them up in a public place in the town. Such publication or posting shall be notice to all persons.

The word "town" when used in any statute includes city. (G. L., c. 4, § 7, cl. 34.)

There are many statutes now appearing in the General Laws which authorize local boards of health to make regulations on specific subjects. Many of these statutes are old and well established, and local boards of health have frequently acted under them in making regulations for the public health and safety. Among the subjects covered by such statutes are Nuisances (G. L., c. 111, §§ 122, 127); Cemeteries (G. L., c. 114, § 37); Articles of Food (G. L., c. 94, §§ 146, 148); Milk Stations (G. L., c. 94, § 32); Sausage Factories (G. L., c. 94, § 144); Bakeries (G. L., c. 111, §§ 37, 38); Dispensaries (G. L., c. 111, § 50); Day Nurseries (G. L., c. 111, §§ 60, 62); Dangerous Diseases (G. L., c. 111, §§ 92, 95, 105); Noisome Trades (G. L., c. 111, §§ 143, 146); Stables (G. L., c. 111, §§ 155, 157); Quarantine (G. L., c. 111, § 177); Vaccination (G. L., c. 111, § 181); Manicuring (G. L., c. 140, § 51).

In the statute relating to articles of food (G. L., c. 94, § 146) the regulations are made subject to the approval of the Department of Public Health. This is the only provision of which I am aware, except that appearing in G. L., c. 111, § 31, for supervision of regulations of local boards of health before they become effective. In most of the statutes a penalty is provided for violation of such regulations, such penalty being generally a fine and sometimes a loss of license.

By G. L., c. 114, § 37, local boards of health are authorized to impose penalties not exceeding $100 for breach of regulations concerning burial grounds and interments. I know of no other provision granting such authority prior to the passage of the statute of 1920, hereinafter referred to.

In G. L., c. 94, § 146, and c. 114, § 37, there are provisions requiring publication of regulations before they become effective. Such provisions do not occur in the other statutes cited. Prior to the enactment of the General Laws there was a general statutory requirement that all regulations made by local boards of health should be published (R. L., c. 75, § 14, as amended). Whether this requirement is continued in the General Laws is a question to be considered.

In 1920 the General Court passed an act (chapter 591) entitled "An Act to make certain substantive changes in and additions to the laws relating to towns." That act contains a number of sections which are in the form of amendments to previous statutes, and some which are not. Among the latter is section 17, which is as follows: —

HEALTH REGULATIONS.

> Town boards of health may make reasonable health regulations which shall be published once in a newspaper if one is published in the town, otherwise in a newspaper published in the county. All regulations made hereunder which provide a penalty for violation thereof shall, before taking effect, be approved by the attorney-general.

The proper construction of this statute is considerably affected by the disposition made of it in the General Laws. It is there combined with R. L., c. 75, § 14, as amended, and thus combined appears as G. L., c. 111, § 31. St. 1920, c. 591, § 17, standing by itself, might well be interpreted simply to authorize under the conditions stated the making of various kinds of reasonable health regulations not authorized by any other statute. But this statute has been combined in the General Laws with a general requirement for publication which must have a broader application. It is my opinion that the requirement with respect to publication was intended by the General Court to be a general one, applicable to all cases where no specific provision is made. Doubtless, also, the section has the effect of giving power to boards of health to make reasonable health regulations in cases not covered by other statutes.

It remains to consider and determine the meaning of the words "all regulations made hereunder which provide a penalty for violation thereof shall, before taking effect, be approved by the attorney-general." I am not able to say that this provision was intended to apply only in cases where no other statute is applicable. Nor do I overlook the use of the word "hereunder," taken from the statute of 1920. In my judgment the provision for publication in G. L., c. 111, § 31, makes that section applicable to all regulations made by local boards of health. But the provision for review by the Attorney-General does not apply to all such regulations. By its terms it is confined to regulations which themselves provide a penalty for violation thereof, as distinguished from regulations for which a penalty is provided by statute. No doubt a board of health may fix a penalty for violation of its regulations when authorized so to do by the Legislature. Carthage *v.* Colligan, 216 N. Y. 217. *Cf.* Lowell *v.* Archambault, 189 Mass. 70, 73. But where the Legislature has by statute fixed the penalty for such violation, the board of health has no jurisdiction in that matter. Johnston *v.* Belmar, 58 N. J. Eq. 354. The penalty in such a case is provided by the statute and not by the regulations.

In cases where the making of regulations is particularly provided for by statute, the General Court has almost uniformly provided the penalty. In cases not thus covered, where boards of health may desire to make regulations, they may desire also to provide penalties for violation thereof. In such cases, and also in the case of regulations made under G. L., c. 114, § 37, and other statutes, if any there be, where the General Court has left the matter of providing penalties to the local boards of health, and in those cases only, such regulations must in my opinion be submitted to the Attorney-General.

In the statute to which you refer (St. 1921, c. 303) the General Court has provided a penalty. I am therefore of the opinion that regulations made under that statute need not be approved by the Attorney-General.

Very truly yours,

J. WESTON ALLEN,

Attorney-General.

NOTES FROM THE ANTITOXIN AND VACCINE LABORATORY.

By Dr. Benjamin White, Director and Pathologist.

1. Under chapter 322 of the General Acts of 1921, the Department of Public Health is authorized to sell outside the State of Massachusetts any surplus stocks of biologic products. Under this authorization the Antitoxin and Vaccine Laboratory is in a position to supply from time to time the following products to physicians, boards of health and institutions outside the State. Such sales will be possible only when, and if, there accumulates an excess stock due to lessened demand for these products by the physicians and institutions of the Commonwealth of Massachusetts. The Department of Public Health will not in any sense enter into the commercial production of biologic products.

Diphtheria antitoxin.
Antimeningococcic serum.
Antipneumococcic serum, Type I.
Vaccine virus.
Bacterial vaccine made from typhoid bacillus, paratyphoid bacilli A and paratyphoid bacilli B.
Diphtheria toxin-antitoxin mixture.
Toxin for the Schick test.

The prices charged for these products will, for the present, be similar to those set by the Bureau of Laboratories of the Department of Public Health of the City of New York. Any orders for such products should be made directly to the Department of Public Health, State House, Boston.

2. Following the experience obtained in this State and the experience of Dr. Park and Dr. Zingher of the New York City Department of Health, the following procedure concerning the Schick test and active immunization with diphtheria toxin-antitoxin mixture is recommended: —

(*a*) All children from six months to six years of age should receive diphtheria toxin-antitoxin mixture without having a Schick test performed upon them. This procedure is recommended because the majority of the children of these ages are susceptible to diphtheria, and it seems unnecessary to carry out Schick tests on these children. Furthermore, children between these ages show practically no constitutional reactions to diphtheria toxin-antitoxin mixture. If these recommendations are carried out throughout the State, we soon shall have a school population immune to diphtheria.

(*b*) All individuals above six years of age should have their susceptibility to diphtheria determined by the Schick test, and all individuals showing a positive reaction should be immunized by three subcutaneous doses of diphtheria toxin-antitoxin mixture. Persons showing a marked pseudoreaction may be spared uncomfortable constitutional reactions by omitting the toxin-antitoxin immunization.

(*c*) All persons immunized with diphtheria toxin-antitoxin mixture should be retested with the Schick test six months after receiving the last injection of diphtheria toxin-antitoxin mixture, and if they are found to give a positive reaction, the course of injections of diphtheria toxin-antitoxin mixture should be repeated.

(*d*) The District Health Officers and the Director of the Division of Biologic Laboratories will gladly co-operate with physicians, institutions and boards of health in demonstrating the technic of the Schick reaction and in performing Schick tests, wherever desired.

3. The expiration date on biologic products distributed by the Department of Public Health has been shortened in order that physicians of the Commonwealth may obtain these products in the highest state of potency. It is urged that physicians, institutions and boards of health carry a supply of these products necessary for not longer than a two weeks' period. In this way the return of unused expired products may be decreased, thus effecting a considerable saving to the State.

4. It is recommended that all persons having the products distributed by the State will return unused products and empty bottles and containers to the Department of Public Health, State House, immediately after the expiration date marked on each package.

5. *Antipneumococcic Serum.* — The State Department of Public Health is now distributing antipneumococcic serum, Type I, for the treatment of lobar pneumonia due to Type I pneumococcus. This serum is not sent out to distributing stations. It is intended only for those cases in which the sputum has been examined and found to contain Type I pneumococcus. On account of the high cost of this serum, it is requested that physicians order only enough serum for immediate use. The laboratory guarantees prompt delivery, and hopes by these recommendations to supply physicians with freshly bottled serum free from any sediment and in the highest state of potency.

6. The Antitoxin and Vaccine Laboratory is open to visitors daily, with the exception of Sunday, between the hours of 9 A.M. and 5 P.M., and on Saturdays until noon. All departments are open to inspection and the various procedures involved in the manufacture and testing of biologic products will be cheerfully demonstrated.

REPORT OF DIVISION OF FOOD AND DRUGS.

July and August.

During the months of July and August, 1921, samples were collected in 98 cities and towns.

There were 1,203 samples of milk examined, of which 400 were below standard, 40 samples had the cream removed, and 35 samples contained added water.

There were 283 samples of food examined, of which 64 were adulterated. These consisted of 45 samples of butter which were rancid, upon which requests for storage extension were made; 8 samples of clams which contained added water; 5 samples of eggs, 3 samples of which were cold storage not marked, and 2 samples were stale eggs sold as fresh eggs; 1 sample of corn which was wormy; 4 samples of soft drinks which contained saccharine; and 1 sample of vinegar which was low in acid.

There were 150 samples of drugs examined, of which 22 were adulterated. These consisted of 22 samples of lime water which were deficient in the active ingredient.

There were 44 hearings held pertaining to violations of the food and drug laws.

The police departments submitted 696 samples of liquor for examination, 633 of which were above 2.75 per cent in alcohol. The police departments also submitted 42 samples of poisons for examination, 26 of which were morphine, 11 cocaine, 2 opium, 1 ammonia, and 2 samples were examined for poison, with negative results.

There were 18 convictions for violations of the law, $760 in fines being imposed.

Aldie Fecteau of Carlisle, John A. Driscoll and Patrick Mulvey of Lexington, Israel Goodman of Pittsfield, and Joseph K. Noons of North Truro were all convicted for violations of the milk laws.

Israel Tater of Fitchburg, Charles Kline and Morris Tinkoll of Fall River, James Sousini of Pittsfield, George Armenis of Boston on 2 cases, Roman Stashis and Peter Tsolakos of Cambridge, Santo Leonardi of Lawrence, and William Tarvis of Provincetown were all convicted for violations of the food laws. Santo Leonardi of Lawrence appealed his case.

Santo Leonardi of Lawrence was convicted for misbranding articles of food. He appealed the case.

Albert B. Kelly of Lawrence and the Western Refining Company of Lowell were both convicted for violations of the drug laws.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Watered milk was obtained as follows: 6 samples, produced by Samuel Adler of Caryville; 5 samples, produced by Joseph Barbosa of Mattapoisett; and 11 samples, produced by Aldie Fecteau of Chelmsford.

Milk having the cream removed was obtained as follows: 1 sample each, produced by David C. Eastman of Salisbury, George Tiffany of Middleborough, and Joseph K. Noons of North Truro; 2 samples each, produced by George E. Taylor of Lunenburg, Benjamin Gagnon of Salisbury, and William Almy of South Westport.

Soft drinks which contained saccharine were obtained as follows: 2 samples each, produced by the New York Mineral Bottling Company of Chelsea and the National Bottling Company of Cambridge.

One sample of vinegar which was low in acid was produced by The Berkshire Cider and Vinegar Company of Pittsfield.

There were 7 confiscations made, consisting of 1,080 pounds of decomposed mixed eggs, 260 pounds of dried-out mutton, 1,836 pounds of decomposed pork trimmings, 506 pounds of decomposed pork butts, 840 pounds of decomposed pork kidneys, 84 pounds of dried-out pork loins and 120 pounds of dried-out veal.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of June, 1921: 2,203,620 dozens of case eggs, 371,071 pounds of broken-out eggs, 7,444,761 pounds of butter, 750,396 pounds of poultry, 7,523,253 pounds of fresh meat and fresh meat products, and 3,738,168 pounds of fresh food fish.

There were on hand July 1, 1921, 16,997,340 dozens of case eggs, 491,014 pounds of broken-out eggs, 8,283,527 pounds of butter, 2,272,697 pounds of poultry, 25,295,461½ pounds of fresh meat and fresh meat products, and 10,880,979 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of July, 1921: 1,280,160 dozens of case eggs, 371,986 pounds of broken-out eggs, 5,705,611 pounds of butter, 355,916 pounds of poultry, 7,607,856 pounds of fresh meat and fresh meat products, and 2,166,162 pounds of fresh food fish.

There were on hand Aug. 1, 1921, 16,461,210 dozens of case eggs, 591,890 pounds of broken-out eggs, 11,668,807 pounds of butter, 1,421,536½ pounds of poultry, 25,735,755 pounds of fresh meat and fresh meat products, and 10,970,521 pounds of fresh food fish.

SEPTEMBER AND OCTOBER.

During the months of September and October, 1921, samples were collected in 88 cities and towns.

There were 919 samples of milk examined, of which 244 were below standard, 30 samples had the cream removed, 50 samples contained added water, and 1 sample was skimmed milk above the legal standard.

There were 218 samples of food examined, of which 73 were adulterated. These consisted of 12 samples of butter which were slightly rancid, upon which requests for storage extension were made; 2 samples of canned salmon which were decomposed; 1 sample of cider which contained benzoic acid; 1 sample of coffee substitute which was misbranded; 46 samples of eggs, 19 samples of which were cold storage not so labeled, and 27 samples were stale eggs sold as fresh eggs; 1 sample of evaporated milk which was misbranded, not being properly labeled as to the amount of water to be added to produce standard milk; 1 sample of olive oil which contained cottonseed oil; 8 samples of soft drinks, 1 of which contained saccharine, and 7 samples were not labeled with the name of the manufacturer, or improperly labeled as to contents, in violation of the regulations of this Department, and 2 of these latter samples in addition contained saccharine; and 1 sample of vinegar which was low in acid.

There were 150 samples of drugs examined, of which 16 were adulterated. These consisted of 1 sample of magnesium citrate which contained magnesium sulphate; 4 samples of precipitated sulphur which were not U. S. P.; 2 samples of zinc ointment which were low in zinc oxide; and 9 samples of spirits of nitrous ether which were deficient in the active ingredient.

There were 39 hearings held pertaining to violations of the food and drug laws, and 5 warnings were issued.

The police departments submitted 882 samples of liquor for examination, 765 of which were above 2.75 per cent in alcohol. The police departments also submitted 42 samples of poisons for examination, 19 of which were morphine, 11 cocaine, 1 opium, 1 caustic soda, and 10 samples were examined for poison, with negative results.

There were 14 convictions for violations of the law, $395 in fines being imposed.

Samuel Adler of Medway, Manuel Mederos of Fall River, and John Bailey of Pelham, N. H., were all convicted for violations of the milk laws.

Samuel Rosenbloom of Revere and John Machaj of Ipswich were both convicted for violations of the food laws. Samuel Rosenbloom of Revere appealed his case.

The Ropes Drug Company and Thomas J. Donovan of Salem and James E. Gould & Co. of Malden were all convicted for violations of the drug laws.

Stephen Pouoplis and Benjamin Sternberg of Springfield and Joseph Cannizzo and Santo Corso of Boston were all convicted for violations of the cold-storage laws.

Thomas Tillman and Joseph Kushner of Springfield were both convicted for false advertising.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Watered milk was obtained as follows: 19 samples, produced by Louis Shinost of West Springfield; 15 samples, produced by Robert B. Davis of Wayland; and 7 samples, produced by Manuel Sousa of South Dartmouth.

One sample of Delisco, a coffee substitute, which was misbranded, was produced by the Delisco Corporation, Ltd., of Boston.

Soft drinks which contained saccharine were obtained as follows: 1 sample each, manufactured by the Ipswich Tonic Company of Ipswich, Chicopee Soda Company of Chicopee, and the Star Soda Water Company of Indian Orchard.

There were 20 confiscations made, consisting of 215 pounds of tainted beef, 376 pounds of decomposed beef, 660 pounds of decomposed beef chucks, 660 pounds of decomposed beef cheek meats, 30 pounds of tainted veal, 140 pounds of immature veal, 10 pounds of decomposed salted anchovies, 35 cans of decomposed salted anchovies, 18 pounds of decomposed salt cod, 83 pounds of rancid Kream Krisp, 8 cans of miscellaneous decomposed vegetables, 1,265 pounds of dried-out fish, 300 pounds of decomposed walnuts, and 3,596 pounds of decomposed muscatel grapes.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of August, 1921: 1,195,260 dozens of case eggs, 393,586 pounds of broken-out eggs, 5,230,023 pounds of butter, 421,030 pounds of poultry, 16,976,538 pounds of fresh meat and fresh meat products, and 2,280,941 pounds of fresh food fish.

There were on hand Sept. 1, 1921, 15,352,140 dozens of case eggs, 689,211 pounds of broken-out eggs, 13,887,219 pounds of butter, 876,764 pounds of poultry, 21,155,566 pounds of fresh meat and fresh meat products, and 13,297,565 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of September, 1921: 794,790 dozens of case eggs, 268,516 pounds of broken-out eggs, 3,974,366 pounds of butter, 784,530 pounds of poultry, 4,394,976 pounds of fresh meat and fresh meat products, and 3,667,924 pounds of fresh food fish.

There were on hand Oct. 1, 1921, 13,140,765 dozens of case eggs, 692,360 pounds of broken-out eggs, 14,834,325 pounds of butter, 1,184,236 pounds of poultry, 16,976,538 pounds of fresh meat and fresh meat products, and 14,976,193 pounds of fresh food fish.

RÉSUMÉ OF COMMUNICABLE DISEASES.

SEPTEMBER, 1921.

General Prevalence.

There were 3,311 communicable diseases reported during September as compared with 3,318 for August; this is the least number for any month this year.

Anterior Poliomyelitis. — There were 54 cases of poliomyelitis reported during September as compared with 61 for August. Just as last month, this disease has seemed to center itself about certain foci; thus, from three foci, one in the eastern, one in the northeastern and one in the western part of the State, 47 of the 54 cases were reported.

Diphtheria shows a slightly increased incidence over last month, there being 526 cases reported for September as compared with 516 for last month.

Dog Bite requiring Antirabic Treatment. — There were 15 cases reported for the month.

Gonorrhea and Syphilis. — Gonorrhea showed a slight decrease, while syphilis was reported in about the usual numbers; totals, 508 and 196, respectively.

Measles. — There were 201 cases reported for this month as compared with 268 for August. This is the smallest monthly total since September, 1920.

Lobar pneumonia was reported in 126 instances. The total for last month was 76.

Scarlet Fever. — There were 279 cases reported for this month as compared with 232 for August.

Pulmonary Tuberculosis. — There were 593 cases reported for September, a slight increase over the number reported for August.

Typhoid Fever. — There were 129 cases reported during the month, while for the same period of 1920 there were 198 cases.

Whooping Cough. — There were 248 cases reported as against 375 for the previous month. This is the smallest monthly total in several years.

Rare Diseases.

Anterior poliomyelitis was reported from Adams, 1; Barnstable, 1; Boston, 10; Cambridge, 2; Everett, 2; Haverhill, 6; Holbrook, 1; Holyoke, 1; Lawrence, 6; Lowell, 1; Ludlow, 1; Lynn, 1; Manchester, 2; Mansfield, 1; Merrimac, 1; Methuen, 1; New Bedford, 1; Newburyport, 1; Northampton, 1; North Attleborough, 1; Norwood, 2; Quincy, 2; Revere, 2; South Hadley, 1; Swampscott, 3; Westfield, 2; total, 54.

Anthrax was reported from Deerfield, 1.

Dog bite requiring antirabic treatment was reported from Boston, 1; Dighton, 1; Everett, 1; Fall River, 2; Hingham, 1; Holyoke, 1; Lowell, 7; Taunton, 1; total, 15.

Dysentery was reported from Boston, 1; Framingham, 1; Haverhill, 1; Malden, 1; total, 4.

Encephalitis lethargica was reported from Beverly, 1; Boston, 2; Cambridge, 1; Chelsea, 1; Haverhill, 2; Lowell, 1; Quincy, 1; Swampscott, 1; Wakefield, 1; Worcester, 1; total, 12.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Cambridge, 2; Greenfield, 1; Newburyport, 1; Walpole, 1; total, 8.

Malaria was reported from Boston, 3; Chelsea, 2; Dedham, 3; Douglas, 1; Dover, 1; total, 10.

Pellagra was reported from Boston, 1; Danvers, 1; total, 2.

Septic sore throat was reported from Cambridge, 1; Fall River, 1; Lowell, 1; Newton, 1; Peabody, 1; Somerville, 1; total, 6.

Tetanus was reported from Boston, 4; Brockton, 1; Cambridge, 1; Leominster, 1; Winchester, 1; total, 8.

Trachoma was reported from Boston, 2; Cambridge, 1; Everett, 1; Fall River, 1; Haverhill, 1; Needham, 1; Somerville, 1; Worcester, 1; total, 9.

Trichinosis was reported from Maynard, 1.

Distribution.

All Communicable Diseases.

	September, 1921.	September, 1920.
Total cases (all causes),	3,314	3,952
Case rate per 100,000 population,	84.9	102.1

Certain Prevalent Diseases.

	September, 1921.	September, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Diphtheria: — Total cases, Case rate per 100,000 population,	 526 13.5	 415 10.7	Attleboro, (1) 4 Bourne, (0) 14 New Bedford, (10) 13 Brockton, (1) 11 Cambridge, (14) 16 Framingham, (1) 4 Newton, (4) 17 Quincy, (5) 13 Stoughton, (0) 13 Haverhill, (6) 14 Lynn, (9) 31 Salem, (4) 10 Winchendon, (0) 7 Worcester, (24) 33 Easthampton, (1) 3 Holyoke, (0) 5 Springfield, (8) 19 Montague, (0) 11 Pittsfield, (2) 6
Measles: — Total cases, Case rate per 100,000 population,	 201 5.2	 207 5.4	Quincy, (2) 13 Lynn, (2) 12 Wakefield, (0) 9 Andover, (2) 38 Holden, (0) 9
Scarlet fever: — Total cases, Case rate per 100,000 population,	 279 7.1	 287 7.4	Boston, (34) 64 Cambridge, (6) 7 Newton, (2) 5 Chelsea, (2) 5 Malden, (5) 8 Peabody, (0) 3 Oxford, (0) 6 North Adams, (0) 9
Typhoid fever: — Total cases, Case rate per 100,000 population,	 129 3.3	 198 5.1	Brockton, (2) 4 Andover, (1) 4
Whooping cough: — Total cases, Case rate per 100,000 population,	 248 6.4	 529 13.7	Dartmouth, (0) 5 Fall River, (13) 20 Nantucket, (0) 18 Framingham, (1) 10 Chelsea, (1) 5 Lynn, (2) 7 Worcester, (2) 9 Ludlow, (0) 3
Tuberculosis, pulmonary: — Total cases, Case rate per 100,000 population,	 593 15.2	 575 14.9	
Tuberculosis, other forms: — Total cases, Case rate per 100,000 population,	 66 1.7	 50 1.3	

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

OCTOBER, 1921.

General Prevalence.

There were 3,918 cases of communicable diseases reported for this month; the total for September, 3,304. This represents a moderate, but not unexpected, increase over the number of reports for the previous month. There were reported during October, 1920, 5,174 cases of communicable diseases.

Anterior poliomyelitis fell off from 54 cases in September to 27 cases for this month.

Chicken Pox. — There were 248 cases of chicken pox reported for October as against 61 for September.

Diphtheria. — There were 884 cases of diphtheria reported this month. This total exceeds that of any other month this year with the exception of January.

Dog bite requiring antirabic treatment was reported in 16 instances. This is a rather high monthly total.

Gonorrhea and syphilis showed decreased reported incidence, with 434 for the former and 170 for the latter; totals for September, 508 and 196, respectively.

Influenza. — There were 27 cases reported for October.

Measles increased from 201 cases for September to 313 for October. This is the usual history for this season of the year.

Lobar Pneumonia. — There were 192 cases for October as compared with 126 for September. This represents an expected seasonal occurrence.

Smallpox. — The 5 cases reported represent the reports of one city. These are the first cases reported since last April.

Pulmonary Tuberculosis. — There were 501 cases of pulmonary tuberculosis reported for the current month. This is about the usual number.

Typhoid Fever. — There were 106 cases reported for this month; total for September, 129 cases.

Whooping cough was reported in 156 instances. This is the least number reported for any month during the past several years.

Rare Diseases.

Anterior poliomyelitis was reported from Adams, 1; Andover, 2; Boston, 4; Cambridge, 1; Chelsea, 1; Chicopee, 1; Everett, 2; Greenfield, 1; Haverhill, 2; Holyoke, 1; Lynn, 1; Melrose, 1; New Bedford, 1; Newburyport, 1; Newton, 1; Pittsfield, 2; Salem, 1; Springfield, 1; Swampscott, 1; Truro, 1; total, 27.

Anthrax was reported from Haverhill, 1.

Dog bite requiring antirabic treatment was reported from Arlington, 1; Billerica, 1; Fall River, 1; Lawrence, 9; Lowell, 3; Somerville, 1; Swansea, 1; Winthrop, 1; Worcester, 1; total, 19.

Dysentery was reported from Adams, 1; Boston, 1; Danvers, 2; Great Barrington, 1; Warren, 1; total, 6.

Encephalitis lethargica was reported from Boston, 7; Lynn, 2; Greenwich, 1; Salem, 1; Worcester, 1; total, 12.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Brookline, 1; Cambridge, 1; Dracut, 1; Framingham, 1; Lowell, 1; Lynn, 1; Swampscott, 1; Tewksbury, 1; total, 11.

Malaria was reported from Dedham, 1; Methuen, 1; Northampton, 1; Northbridge, 2; total, 5.

Septic sore throat was reported from Boston, 4; Cambridge, 1; Lowell, 2; Sutton, 1; total, 8.

Smallpox was reported from Worcester, 5.

Tetanus was reported from Chelsea, 1; Fall River, 1; Haverhill, 1; New Bedford, 1; Shirley, 1; total, 5.

Trachoma was reported from Arlington, 1; Boston, 2; Braintree, 1; Worcester, 3; total, 7.

Distribution.

All Communicable Diseases.

	October, 1921.	October, 1920.
Total cases (all causes),	3,914	5,174
Case rate per 100,000 population,	100.3	133.7

Certain Prevalent Diseases.

	October, 1921.	October, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria: —			Acushnet,	(0)	6
Total cases,	884	744	New Bedford,	(16)	36
Case rate per 100,000 population,	22.7	19.2	Wareham,	(0)	9
			Brockton,	(5)	15
			Framingham,	(3)	11
			Hingham,	(0)	12
			Stoughton,	(0)	19
			Haverhill,	(17)	30
			Lynn,	(17)	40
			Stoneham,	(0)	15
			Chelmsford,	(0)	7
			Douglas,	(1)	6
			Winchendon,	(0)	10
			Worcester,	(34)	58
			Chicopee,	(6)	17
			Easthampton,	(2)	12
			Holyoke,	(5)	13
			Springfield,	(13)	36
			Montague,	(0)	10
			Pittsfield,	(1)	27
Measles: —			Milton,	(0)	20
Total cases,	313	714	Newton,	(10)	26
Case rate per 100,000 population,	8.0	18.5	Andover,	(0)	88
			Medford,	(1)	50
Scarlet fever: —			New Bedford,	(8)	16
Total cases,	431	543	Chelsea,	(3)	12
Case rate per 100,000 population,	11.0	14.0	Southbridge,	(0)	10
			Greenfield,	(4)	8
Typhoid fever: —					
Total cases,	106	127	Milford,	(0)	8
Case rate per 100,000 population,	2.7	3.3			
Whooping cough: —					
Total cases,	156	391			
Case rate per 100,000 population,	4.0	10.1			
Tuberculosis, pulmonary: —					
Total cases,	501	555			
Case rate per 100,000 population,	12.8	14.3			
Tuberculosis, other forms: —					
Total cases,	79	61			
Case rate per 100,000 population,	2.0	1.6			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

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THE COMMONHEALTH

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MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., COMMISSIONER

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DUTIES OF THE SCHOOL NURSE.

By Fredrika Moore, M.D., Pediatrician, Massachusetts Department of Public Health.

THE school nurse, a comparatively recent comer to the field of health supervision of the school child, has made an indispensable place for herself. She has not supplanted the school physician and of course will not, but the work of the school physician is wasted to a large extent if the services of a school nurse are not available. The school physician has been recognized by law since 1906; the school nurse obtained legal standing in all cities and towns in the State only in 1921. At the present time, however, each city and town is obliged by law to have at least part-time service from both school physician and school nurse. In towns, these officials are employed by the school committee; in cities, by the board of health or by the school committee. Towns with a valuation of less than $1,000,000 may be exempted from the provisions of the school nurse requirement in the discretion of the State Department of Education.

Qualifications of the School Nurse.

The majority of nurses now engaged in school work have had to fit themselves gradually for their duties through actual experience rather than through training. This system produces results ultimately, but is slow and wasteful. At the present time, the school nurse who wants to get the most out of her work should have had, in addition to her hospital experience, training in a school for public health nursing. Teaching experience in addition to this is of the highest value, since the modern school nurse is more teacher than nurse. The better educated she is, the more all-round training she has had, the better results she may look for. Of personal qualifications she must have many, — tact, patience, firmness are essential. She must love children of all ages, races and degrees of cleanliness. Judgment she must have in abundant measure, else she must rely upon becoming an automaton; and this age of invention has not yet produced a successful nursing automaton.

RELATION OF PARENTS TO SCHOOL MEDICAL INSPECTION.

In all the medical inspection work the parents, next to the child, are the most important factor. They are the ones with whom the final authority rests. Theirs is the responsibility for the health of the child. "Medical inspection is not to relieve them of that responsibility but to help them with it." It is for the nurse to bring that idea home to them, not by treating them as willfully negligent but by gaining their good will.

Occasionally it is necessary to use the money motive with parents, but, as a rule, if the nurse can impress them with her personal interest in the child, they will respond to her suggestions. Usually the parents have not been conscious of the defect or, if they have, have not known what to do or have not been able financially to do anything.

In visiting the home the nurse can without asking direct questions gauge the financial condition of the family and can get co-operation from some social agency when necessary. She can also report any defective housing conditions to the proper people.

METHOD OF CONDUCTING SPECIAL EXAMINATIONS.

Naturally the home visit must have been preceded by the examination of the child by the school physician. The nurse should always be present at this examination. Generally it is she who does the weighing and measuring. She also sends the notices out, but they should always be signed by the doctor or the teacher, never by her.

According to law, proper facilities for conducting the examination are to be furnished by the school authorities. Practically this cannot always be done, notably in the one-room country schools. Then the nurse must exercise her ingenuity to gain the proper privacy for the examination, for it should never be made in the presence of others, with, perhaps, the exception of the teacher. It is always wise, and usually possible, if the proper effort is made, to have the mother present, as the opportunity for discussing the child is of mutual benefit to both the mother and the doctor.

When a child has been referred to the family physician, it is only courteous to notify him of the fact.

If, instead, a dispensary is to take charge, the parents are often glad to give their written consent to the nurse to take the child there. In that case she can use her time to the best advantage by arranging to take several children at once.

GENERAL INSPECTION.

In addition to her visit with the doctor, the nurse should make visits to the schools at regular intervals for general inspection, to see special cases, to answer questions, and to do health teaching. If the teachers know when to expect her, they are much more likely to have special children and questions ready for her.

On entering a building the nurse should always speak to the principal and get her suggestions before going to the rooms. Interruption of class teaching is naturally something of an annoyance, but there are few teachers who do not appreciate the value of preventive work and who will not give it their enthusiastic support provided the nurse remembers that she is a co-worker with the teacher and not an outsider going in to dictate.

In making the general inspection, careful watch must be kept for contagious diseases. It is very helpful to have an arrangement with the board of health by which a list of the contagious diseases reported is sent to the school office every morning. The nurse can then keep an especially watchful eye on children coming from neighborhoods where there is contagion.

In questioning a child that has been absent, it should not be asked whether it has had measles, chicken pox, etc., but whether it has had sore throat, running nose, swollen glands, rash, etc.

When anything suggestive of one of the contagious diseases is found, the child should be excluded at once and the board of health and the school physician notified.

EQUIPMENT.

Every school should be equipped with the following supplies: —

Scales.
Gauze.
Tongue depressors.
Basin.
Thermometer.
Bandages.
Some method of heating water.
Adhesive tape.
Absorbent cotton.
Paper of needles.
Pins.
Tincture of green soap.
Aromatic spirits of ammonia.
Collodion.
Scissors.
Boracic acid.
Vaseline.
Forceps.
Oil of cloves.
Iodine.
Some antiseptic salve.
Medicine dropper.

ETHICS.

There are two very important things for every nurse to remember: first, emergency cases may arise which require first-aid treatment, but apart from these, treatments must never be given in or outside the school; second, any recommendation of a particular doctor or hospital must be carefully avoided.

TEACHING.

Unless the nurse adds to her other duties the work of teaching, her mission is only partly fulfilled. The formation of health habits is the foundation of all her work. By precept and example, she should instruct the teachers, the mothers and the children.

It is useless for a nurse to teach cleanliness if she is untidy. It is useless for her to talk to the children about posture unless she stands correctly herself. Her lessons on footwear are wasted if she is wearing pointed-toed, high-heeled shoes herself.

The little children can be reached by talks, stories, games, posters, etc., the older ones by classes in home nursing, hygiene, public sanitation, etc. The mothers can be reached in their homes and at mothers' meetings. The work which a nurse can do along this line is limited only by her own ability.

RECORDS.

An important, but to many an uninteresting, part of the work is the keeping of records. The nurse should be responsible for the individual physical record cards of the pupils, for the home notices, for reports on home visiting, for weekly, monthly and yearly reports on her work.

RURAL NURSING.

The problem of the nurse in charge of rural schools is more difficult than that of her city sister, and she is rash who undertakes to solve it without a knowledge of the psychology of country people, of their life and of their resources, and without a love of the country herself. But her opportunities are correspondingly great. She has a practically untouched field to till. Whether it brings forth a crop of antagonism, distrust and failure or one of friendship, happiness, health and better living conditions, rests with her alone.

SUMMARY OF DUTIES OF THE SCHOOL NURSE.

1. To assist the school physician in examining the children and in keeping records.

2. To watch for any evidence of communicable disease in the school, and, when found, to notify the teacher, principal and school physician.

3. To detect and refer to the school physician any evidence of eye, ear, nose or throat trouble, or other physical or mental defects.

4. To render first aid in emergency cases occurring in schools and to see that the child is taken either to its home or to the family physician.

5. To report to school physician, superintendent or principal of schools any error she may detect as to light, heat and ventilation in the schools, or any improper seating or insanitary conditions of any kind.

6. To follow up absentees from school to make sure that they are not suffering from communicable or other disease.

7. To follow up the recommendations of the school physicians or dentist and to inform the superintendent of schools and the school physician of results obtained.

8. To accompany children, with written permission of parent or guardian, to hospital, dispensary, dental clinic, family physician, oculist or dentist, and to secure from such a report as to services rendered to pupils.

9. To investigate and advise as to home conditions where necessary.

10. To instruct children and parents in matters of personal and public health and to bring home and school closer together.

GENERAL LAWS AFFECTING THE MEDICAL SUPERVISION OF SCHOOL CHILDREN.

Chapter 71, sections 3, 46, 54–58, 72.
Chapter 76, sections 1, 2, 15.
Chapter 111, sections 8, 181, 183.
Chapter 118, sections 1–6.
Chapter 149, sections 86–89.

SOME BOOKS WHICH WILL BE HELPFUL TO THE SCHOOL NURSE.

"Hand Book for School Nurses," Kelly and Bradshaw, Macmillan.
"Health and Medical Inspection of School Children," Cornell, Davis.
"Health in the Schools," Hoag and Terman, Houghton Mifflin Company.
"Hygiene and Sanitation for Public Health Nurses," Hill, Macmillan.
"Hygiene of the School Child," Terman, Houghton Mifflin Company.
"Teaching of Hygiene in the Grades," Mace, Houghton Mifflin Company.
"The School Nurse," Struthers, Putnam.

TOOTH CONDITIONS IN IMMIGRANTS.

BY WILLIAM P. COOK, D.M.D., PROFESSOR OF PREVENTIVE DENTISTRY, HARVARD DENTAL SCHOOL, BOSTON.

AMERICA claims to have the most advanced ideas on dentistry; we claim to have some of the ablest dentists; our dental schools are second to none; we graduate more dentists each year than any other country; students come to us from foreign countries; we are really the home of the dental profession. Why does America lead in this matter? A study of the tooth conditions in our country and tooth conditions in other countries, as shown by the arriving immigrants, will throw some light on this problem.

Man, the highest in the scale of creation, with all his reasoning powers, through his habits of eating and drinking, has the most diseased mouth of all animal creation. The mouth of the dog is clean, his breath sweet and his tongue clean. Compare the mouth of the family dog with the mouths of the human members of the family and usually you will find disease and decay in the human members of the household and not any in the dog when he has been fed on normal dog food.

Is this condition usual in mankind? I think it is usual where the dietary conditions produce it, but it is not a normal condition of the race.

I have examined hundreds of mouths of school children from six to twelve years of age at the preventive dental clinic at the Harvard Dental School during the past winter. With few exceptions, the teeth of these children were badly broken from decay. A comparison with children who recently arrived in this country showed very little loss of tooth tissue in the children of the Italians, Albanians, Jugo-Slavs, Sicilians, Austrians or Lithuanians. Some of these children had been here but a few weeks, none more than three months. Where the children had lived in the rural parts of the country no decay existed, but their teeth were very much worn. One girl, six or seven years old, showed the incisor worn halfway to the gums and the cuspids and temporary molars also showed considerable wear, but no decay was present. The fissures were well formed and the mouth clean, the tongue not coated, as is the usual condition in school children fed upon a starchy diet, with sweet cakes and candy.

Those immigrant children who had moved into the cities when the war began had some decay, but this was due to a change in diet.

As a result of these studies of children I visited the immigration station and examined middle-aged people from the same countries. As a rule their mouths were clean, though of course not so clean as in their native land, since they could not get their native food. Occasionally a tooth was missing, but most of the teeth were perfectly formed, with no fissure cavities. One man, over sixty years of age, showed all teeth present and good occlusion. The development of his jaws was very good. The fibrous food eaten required much chewing and the normal development of teeth and jaws was the result. The diet of these people, except where they have come in touch with American food products, has been such as to prevent decay of the teeth: hard, dark bread, so hard it made the jaws ache to eat it; vegetables; fruits; dark macaroni; hard goat's cheese; some fish; not much meat; no sweets; no sweet cakes or soft crackers; no candy. Food of this character (especially fruit, if eaten at the close of a meal) leaves the mouth physiologically clean, as emphasized by Dr. J. Sims Wallace.

Compare this condition with that of the mouth of the average American after a meal of our soft, sweet food. The tongue is covered with soft food; the interdental spaces are also filled with sweet, carbohydrate food. There is no exercise of the muscles made for use in mastication, as the food eaten does not require chewing.

This phase of dentistry, as shown by our dental schools, has been developed to meet a need caused by our eating habits. Our refined flour, sugar and other food products and canned vegetables (deficient in mineral or vitamine content) have helped to build up the dental profession and the medical profession as well, since the digestive disturbances caused by the food require treatment.

This is a vicious circle. The remedy is not more or better repair dentistry, but a change in dietary habits. A practical illustration is brought to our doors by these immigrants. Their wonderful tooth development will not withstand our diet. Many of them who come to America with sound teeth sacrifice them for artificial teeth after adopting our diet.

DIPHTHERIA CARRIERS AMONG MASSACHUSETTS SCHOOL CHILDREN.[1]

By Edith Beckler, Helen Gillette and Mary Parker, Boston.

A STUDY of nose and throat cultures from over 8,000 school children of Massachusetts, from five to fifteen years of age, has been made during the past year and a half. The cultures were taken in 35 cities and towns throughout the State, as a rule under the direction of the school physicians. Nose and throat cultures were taken from each child. They were taken because a noticeable number of cases of diphtheria had occurred in the schools. They would therefore be considered contact cultures although probably many of the pupils did not come in contact with the cases. In some instances cultures were taken from all the pupils in a school, in others, from the pupils in a single room, when the cases were limited to one room.

The 8,389 cultures received were grown on Loeffler's blood serum having a P_H value of 7.2. After from fourteen to eighteen hours' incubation at 34° C. they were examined for diphtheria bacilli, the smears being stained with Loeffler's methylene blue. All of the cultures were examined by the same bacteriologists. Of the 8,389 cultures examined, 41 positives were obtained, or approximately .49 per cent. The highest percentage of positives in any one group was 13, when 4 positives were found in 31 cultures from one schoolroom.

Virulence tests were made on 38 cultures isolated. Unfortunately the other 3 cultures were lost before tests could be made. Guinea pigs weighing from 200 to 300 grams were inoculated subcutaneously with 1 cubic centimeter of a forty-eight-hour broth culture of the bacillus, the control animal receiving 500 units of diphtheria antitoxin before the broth culture. Two of the 38 cultures tested were found to be nonpathogenic. Approximately 95 per cent were virulent, killing the unprotected guinea pigs in from forty-eight to sixty hours.

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[1] From the Bacteriological Laboratory of the Massachusetts Department of Public Health. Reprinted from "The Journal of Infectious Diseases," Vol. 29, No. 6, December, 1921, pp. 577–579.

There was no evidence that cultures diminished in virulence, because some of the cultures had been grown on artificial mediums for six months without losing their virulence.

Many diphtheroid bacilli were encountered during the examinations. The familiar Hofmann bacillus gave little trouble, but other bacilli more closely resembling diphtheria bacilli were frequently found. In these bacilli polar granules were often observed, but when studied in young cultures they were found to show deviations from the true diphtheria bacillus, especially in the grouping and rate of growth. As it is the custom of this laboratory to examine and report on young (two to eight hour) cultures of diphtheria bacilli in the routine diagnosis of diphtheria, the laboratory workers are very familiar with the appearance of young diphtheria forms; therefore, differences were readily noted in the case of diphtheroids, and it was not necessary to delay the report of the school cultures more than a few hours. Certain bacilli resembling the B form of Wesbrook's types have been tested in the past for virulence and all have been found avirulent for guinea pigs. These somewhat suspicious bacilli have been considered by us as diphtheroids, not avirulent diphtheria bacilli. The two cultures tested which did not kill the guinea pigs may have been avirulent diphtheria bacilli because in morphology and cultural characteristics they appeared typical, but it is quite possible that they were distinct species and that, had we been more discriminating, morphologic differences from the true diphtheria bacillus might have been noticed. Our opinion is that avirulent diphtheria bacilli are rare. The results obtained by us are quite different from those of some other observers, notably Moss, Gelian and Guthrie,[1] who found 85 positive throat cultures among 800 school children of Baltimore, and of the 64 cultures tested 87.5 per cent were avirulent. However, it does not seem safe to assume a similar distribution elsewhere. Examination of over 6,000 contacts made by us in 1915 showed only .6 per cent positive. It would appear that among large groups of school children in Massachusetts less than 1 per cent harbor diphtheria bacilli, virulent and avirulent.

We are aware of the fact that a single culture from a throat is not conclusive evidence, but there has been no epidemiologic evidence that we have missed many carriers; in most instances, isolation of the carriers detected has led to a cessation of the cases in the schools. Some of the carriers reported were said to show some symptoms of diphtheria and were actually missed cases rather than healthy carriers. The sphere of influence of one carrier, or missed case, seems to be considerable, and the detection of the relatively small number of these leads to a diminution of the cases occurring in the schools. The taking of school cultures appears to be of distinct value.

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[1] Bulletin, Johns Hopkins Hospital, 1920, 31, p. 388.

SUMMARY.

In Massachusetts, school children among whom cases of diphtheria occurred showed a small number of carriers of virulent diphtheria bacilli. Of a total of 8,389, only 41, or approximately .49 per cent, positive cultures were obtained. Of the 38 cultures tested for virulence, approximately 95 per cent were virulent.

Avirulent diphtheria bacilli, said to be common in some places, are uncommon in this State. Only 2 cultures were found which were considered identical with the diphtheria bacillus in morphology.

Diphtheroid bacilli are common, but a careful study of the morphology and cultural characters shows differences from the true diphtheria bacillus and makes many virulence tests unnecessary. Familiarity with young cultures of diphtheria and diphtheroid bacilli is very helpful.

"A TOOTH FOR EVERY CHILD."

By Evelyn C. Schmidt, D.H., Health Instructor in Mouth Hygiene, Massachusetts Department of Public Health.

THAT every child costs his mother a tooth is an old adage which one hears frequently even nowadays. In fact, some people even go so far as to say, "After three babies, false teeth." While neither of these sayings is literally true, the fact that they have been quoted for generations makes one realize that many mothers have seen the effect of pregnancy on the teeth. Moreover, the very voicing of these sentiments does much harm, for prospective mothers are apt to become reconciled to tooth destruction during this period rather than try to prevent it.

PROPER DIET IS THE FIRST STEP.

It is true, of course, that the teeth are more susceptible to decay during pregnancy and lactation than ordinarily, but why? And what can one do to prevent it?

During the development of the child there is a demand for minerals to build the skeleton of the child, — the bones and the teeth. In fact, during the seventh week of fetal life, the foundation is laid for the first baby tooth, which will not appear before the child is about six months old. This demand must be supplied by the mother, either by the food she eats or by the minerals in her own body. Of course the former way is the one intended by nature. Therefore, in order to insure correct development of her child, every pregnant woman should eat daily the foods which contain minerals and vitamines, the latter growth promoting substances which help the system to utilize the minerals. Foods containing these substances are milk and the dairy products, whole grains, eggs, fruits, both fresh and dried, and vegetables, especially the green and leafy ones. Milk is particularly rich in the lime salts. By eating the proper foods, therefore, a woman is not only protecting the development of the baby but also is protecting herself. If she does not do so, her system is called upon, and each part pays the toll, the teeth included.

PROPER CHEWING HELPS TO KEEP THE MOUTH NORMAL.

After diet comes the mastication. Every organ of the body is improved by use, and proper chewing of hard, resistant foods gives the mouth the exercise it needs to help make it self-cleansing and to keep it healthy and normal.

FREQUENT VISITS TO THE DENTIST ARE NECESSARY.

It is advisable for every woman, as soon as she knows she is pregnant, to go to the dentist to have her teeth examined and put in good condition. It is economy to choose a good dentist, for cheap dentistry is really expensive when it means that fillings do not stay in and that the teeth have been improperly prepared and treated. Tell your dentist of your condition and then follow his advice. Doctors who specialize in the best and proper care for women during pregnancy urge that dental work, if needed, be done during this period, as the presence of decaying teeth adds to the tendency to nausea and vomiting, prevents proper chewing, disturbs the digestion, and therefore interferes with the nutrition of both the mother and the child. Toothache, decay, loosening of the teeth, and inflammation of the gums are frequent in pregnancy; therefore, the visits to the dentist should be frequent. Dental work will not cause miscarriage, as some people fear. Of course prolonged, painful operations are not undertaken, but simple fillings and even extractions may be made with a beneficial rather than a harmful effect.

EXCELLENT DAILY CARE SHOULD BE GIVEN THE MOUTH.

It is of the greatest importance to give the mouth excellent daily care during pregnancy as the saliva is somewhat changed in consistency and there is apt to be vomiting and acid regurgitations. Brush the teeth with an up-and-down motion of the brush after each meal, use dental floss between the teeth to remove any remaining food particles, and finally rinse the mouth well with a mouth wash. Excellent washes are salt and water (one-half teaspoonful of common table salt in a glass of water), milk of magnesia, a solution of bicarbonate of soda (one-half teaspoonful of common baking soda dissolved in a glass of water) or lime water. Lime water may be prepared at home easily and inexpensively in the following way. Secure from the paint shop a 5-cent lump of coarse lime. Crush it into a fine powder, place a half cupful in an empty quart bottle and fill nearly full with cold water. Shake thoroughly, then allow to settle for several hours, after which pour the water off the lime, as this first mixing contains the washing of the lime. Again fill the bottle, shake well and allow to settle. This lime water may be poured into a small bottle which is more convenient to handle and the quart bottle refilled with clear water and set aside to be used again. So on the process may be repeated, since a half cup of lime will make 5 or 6 quarts of mouth wash.

After brushing and flossing the teeth, pour a little lime water into a glass, and, taking it into the mouth, force it back and forth between the teeth and tongue until it foams. Care should be taken to draw the liquid between the teeth. If the lime water is a little strong at first, dilute it with clear water, half and half.

A mouth wash should be used after each brushing, after vomiting and regurgitations.

Attention to the diet, to chewing, to dental and home care by every pregnant woman will prove the fallacy of the saying "For every child a tooth."

THE COMMONHEALTH.

BIMONTHLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
Room 546, State House, Boston, Mass.

The Infant Mortality for 1921.—The unprecedented drop in infant mortality the country over during the past year brings home to us with emphasis how little we really know of the factors underlying infant mortality. For years we have been content to ascribe to poverty the major rôle in the causation of deaths among babies; it is now partially recognized that ignorance is more potent than poverty. Still the level of sanitary intelligence does not change so remarkably over night or even in a year. The information of the public on matters of hygiene is going on surely but slowly and does not at all fully account for sudden shifts in the infant mortality. The greatest duty of sanitarians at the present time is to avoid the old fallacy of *post hoc ergo propter hoc*. There is enough to be proud of without making claims which cannot be substantiated. It is not safe to "point with pride" to the 1921 infant mortality without remembering that pride not only goeth before a fall but may also go before a rise in infant mortality in a subsequent year.

Public Health Institute for New England. — Every health officer, public health nurse or other health worker is urged to reserve the dates May 1 to 6, 1922, for attendance at the Public Health Institute to be held at Hartford, Conn. A preliminary program, at least, will be available before this issue of the "Commonhealth" appears in print. Dr. John T. Black, health commissioner of Connecticut, has the program in charge and it bids fair to be the best ever.

It is to be hoped that boards of health, school committees, nursing associations and others employing public health workers will see the importance of requiring the attendance of their employees at this institute, and, more important still, will see the justice of paying the expenses of these workers while they are acquiring new knowledge which will render them more valuable to their respective communities.

Consistency. — Apropos of nothing in particular, why is it that most persons are passionately addicted to the making and breaking of laws. Each year an endless army climbs Beacon Hill to get legislation enacted which will correct all the evils of life, yet few people will obey the laws we have when the latter run counter to our prejudices or even to our convenience.

This indifference to rules and regulations may be seen even among those in authority. Health officers and policemen, and legislators too, I suppose, will spit where they like, regardless of the anti-spitting laws they are supposed to uphold. Towns will dodge statutes if they think there is no penalty attached. School committees will refuse to enforce vaccination laws they do not approve of, regardless of the wretched civic examples they are thereby setting the young citizens to be who are temporarily in their charge.

Aside from the matter of law there is the question of health teaching. Children learn by example, yet how few parents will deprive themselves of anything they enjoy or will undertake anything that is disagreeable for the sake of setting a good example to their child. The child must eat cereal because it is good for him, but the mother will not eat it because she does not like it. Father warns the boy against learning to smoke, yet smokes to excess himself in spite of the knowledge that ill health on his part may jeopardize his chance to give his boy an education.

Would it be amiss to suggest the following to some high school graduating class looking for a class motto: "Less theory and more practice; fewer laws and better obedience to law"?

New Posters and Lantern Slides on the Foodway to Health. — Because of the continued demand for educational material on the subject of food and its relation to health, several additions have been made to the lantern slides on nutrition, thus making possible, in addition to the slides available for use with children, supplementary slides which can be used for talks to adult audiences.

There is available also a series of new posters, about forty in all, on the subject of food and health, to supplement the material previously supplied by the Department. These posters are approximately 12 by 15 inches in size, mounted on cardboard and bound with cloth. They can be used to good advantage in schools and in groups where no electricity is available for the use of a stereopticon for the showing of lantern slides.

A SCHEME OF MATERNAL WELFARE: REPORT OF THE JOINT COMMITTEE ON MATERNAL WELFARE OF THE AMERICAN GYNECOLOGICAL SOCIETY AND THE AMERICAN ASSOCIATION FOR CHILD HYGIENE.

The committee considers its proper functions to be: —

A. Elaboration of a complete scheme of maternal welfare as ideally developed, emphasizing the most important points for starting the development of such a plan with the idea of educating the public to the necessity of this work and to serve as a basis for governmental activity. The following skeleton plan is presented:

- I. Preservation of life and health of the mother:
  - (*a*) Decrease in the number of infections following abortion and childbirth.
  - (*b*) Providing better trained attendants.
  - (*c*) Educating the laity as to the proper preparation and necessity for proper supervision during pregnancy, etc.
  - (*d*) Inspection and control of institutions, etc., caring for maternal cases.
  - (*e*) Prevention and treatment of venereal disease in association with pregnancy.
  - (*f*) Control of toxemias.
- II. Increase in the number of fruitful pregnancies by —
  - (*a*) Decrease in the amount of sterility —
    - 1. By diminution in the number of infections following abortion and childbirth.
    - 2. By diminution of venereal disease, especially GC.
  - (*b*) Diminution in the number of abortions —
    - 1. By diminution in the number of spontaneous abortions by educating as to proper care when threatening symptoms develop.
    - 2. By diminution in the number of induced abortions:
      - (1) Self-induced.
      - (2) Criminal operations.
      - (3) Therapeutic abortions.
      - N.B. (1) We recommend that hospitals require the written sanction of at least two reputable medical men before permission to perform an abortion is granted. (2) We recognize the desirability of making abortions reportable to the health authorities.
  - (*c*) Diminution of the number of premature birth deaths:
    - 1. Education and supervision.
    - 2. Provision for proper care of premature infants.
    - 3. Recognition treatment of syphilis.

(*d*) Diminution in the number of stillbirths:

1. Improvement of statistics and methods of reporting stillbirths with causes.
2. Education of laity and profession.
3. Provision of better antepartum and intrapartum care.
4. Better care of syphilitics.

(*e*) Diminution in the number of neonatal deaths:

1. Recognition of the importance of these deaths.
2. Methods of prevention.
3. Education of laity and profession.
4. Provision of better antenatal, intrapartum and postpartum care.

N.B. More careful scientific study of both stillbirths and neonatal deaths together with causes of abortion, miscarriage and premature birth.

III. Better facilities for the care of the unmarried mother for her own protection and that of her offspring.

B. Definition of the relationship of this work to other health and welfare activities such as infant and child welfare; venereal disease campaign; anti-tuberculosis; boards of health; Red Cross and nursing activities, as well as social agencies; certain eugenic problems.

C. To have some responsible agency of representatives and well-qualified men to advise with the governmental agencies on the problems of maternal welfare. This may be enlarged to become a part of a sort of institution or academy of sciences which could well be an advisory body on matters pertaining to public health and welfare.

D. It is particularly important to work out problems of maternal and child welfare in co-operation with the pediatrists, by means of a joint committee representative of the leading national societies. We recommend that this Joint Committee on Maternal Welfare work with one representing the American Pediatric Society to elaborate maternal and infant welfare programs.

CHANGES IN PERSONNEL.

Resignation of Dr. Finnegan.

Dr. Francis A. Finnegan, State District Health Officer, has resigned to become director of hygiene of the city of Lowell, the resignation taking effect on February 15.

Dr. Finnegan was appointed July 1, 1916, as District Health Officer of the Wachusett Health District, with headquarters in Fitchburg.

When Camp Devens was established a large part of the territory taken over for the camp was located in the Wachusett District, and Dr. Finnegan was one of a committee of the Department which advised and assisted the camp authorities in this difficult work.

In December, 1919, Dr. Finnegan was transferred to the South Midland District, with central office in Worcester.

In September, 1920, the State was redistricted and those cities and towns of the Wachusett District and the South Midland District located in Worcester County were combined in the Worcester County District. Because of Dr. Finnegan's experience in the Wachusett District and his later association with the southern section of the county, he was assigned to health officer work for this county. This is one of the largest districts of the State, covering 60 cities and towns scattered over a large territory.

New District Health Officer for Worcester County.

Dr. Oscar A. Dudley, who is now serving as District Health Officer in the Berkshire District, is to be transferred to the Worcester County District to succeed Dr. Finnegan.

Dr. Dudley served from December, 1919, to September, 1920, as District Health Officer of the Wachusett District. Because of his familiarity with the cities and towns which were formerly in the Wachusett District and which are now included in the Worcester County District, as well as because of his long residence in Wayland, which borders on Worcester County, it is felt that he will be able to render to this section the high grade of service required.

Berkshire District.

Dr. Leland M. French, who has been epidemiologist in the central office of the Department since June, 1921, will be transferred to the Berkshire District to fill the vacancy caused by Dr. Dudley's change to the Worcester County District.

An examination to fill the vacancy in the position of epidemiologist will be held April 3 and 4, 1922. The names of those passing the examination will be placed on an eligible list to fill future vacancies in the District Health Officer force and in the position of epidemiologist.

Dr. French will continue as epidemiologist pending the result of the examination. A new appointment will probably be made about May 1 and Dr. French will take over the Berkshire District at this time.

New Pediatrician in Division of Hygiene.

Dr. Fredrika Moore has been connected with the Division of Hygiene, State Department of Public Health, since Nov. 1, 1921, as pediatrician. Dr. Moore was graduated from Wellesley College and Boston University School of Medicine. She has served as a member of the staff of the children's department of the Massachusetts Homœopathic Hospital and as instructor in the Boston University School of Medicine. Dr. Moore has practiced medicine in Winchester since completing her medical training and has taken an active part in the community life of that town, serving as a school physician, as director of tuberculosis work in the Winchester Board of Health, and as one of the directors of the Winchester Visiting Nurse Association.

HOW ONE CITY HANDLES ITS RESTAURANT PROBLEM.

DEPARTMENT OF HEALTH.
City of Quincy,
Massachusetts.

Regulations governing Restaurants, Lunch Rooms, Hotels and Public Cooking Establishments.

1. Every restaurant, lunch room, hotel or other public cooking establishment shall be constructed, drained, lighted, ventilated and the premises, yards, utensils, dishes and other equipment maintained in a clean and sanitary condition, and when and where necessary screened against flies.

2. Suitable lockers or rooms shall be provided for the changing and hanging of the wearing apparel of the workers or employees.

3. Before beginning the work of preparing, serving or handling the food every person so engaged shall wash his or her hands and after using the toilets or water closets every person therein engaged shall wash his or her hands thoroughly; and for this purpose the owner or manager of the establishment shall provide suitable facilities.

4. An adequate supply of hot water shall be provided at all times and all utensils and dishes shall be thoroughly cleaned and sterilized immediately after being used and before being used again.

5. Suitable metal, covered garbage cans shall be provided.

6. A suitable bin or other covered receptacles shall be provided for tin cans and other rubbish.

7. The food and stock shall be protected by proper covering, at all times, from contamination from flies, dust and other sources.

8. No ice shall be used in direct contact with foods and drinks unless the source thereof has been approved by the Health Commissioner.

9. The Health Commissioner may require any person intending to work in a restaurant, lunch room, hotel or other public cooking establishment to submit to a thorough examination to ascertain whether he is afflicted with any contagious, infectious or other disease or physical ailment. All such examinations shall be made at the expense of the Department of Health. Any person so examined may have his physician present at the examination.

10. If after inspection a restaurant, lunch room, hotel or other public cooking establishment is not constructed, maintained, operated or the distribution of its products not conducted in accordance with these regulations, written notice shall be given the owner or manager, stating the delinquency and fixing a reasonable time within which the same shall be remedied and for the hearing of any person in interest.

11. If a restaurant, lunch room, hotel or other public cooking establishment is unfit for the handling and production of food or is dangerous to the health of its employees, this department may order it closed in accordance with law.

PENALTY.

Whoever violates any of the provisions of the foregoing regulations shall forfeit a sum not exceeding one hundred dollars.

I, Fred E. Jones, Health Commissioner for the City of Quincy, hereby certify that the foregoing regulations have been adopted by the Department of Health, subject to the approval of the Attorney-General.

FRED E. JONES.

QUINCY, MASS., Nov. 16, 1921.

Then personally appeared the above-named Fred E. Jones and made oath that the foregoing statements are true.

MARGUERITE S. LYONS,
Special Commissioner.

BOSTON, MASS., Nov. 17, 1921.

The foregoing regulations are hereby approved.

J. WESTON ALLEN,
Attorney-General.

RÉSUMÉ OF COMMUNICABLE DISEASES.

November, 1921.

General Prevalence.

There were 5,421 cases of communicable diseases reported for this month. This represents moderate increases in the reported incidence of all the common communicable diseases.

Anterior poliomyelitis was reported in 15 instances; the total for previous month was 27 cases.

Chicken Pox. — There were 646 cases reported for this month as compared with 248 for October. This is about the number expected for this month.

Diphtheria increased from 885 cases for October to 1,185 for this month. The reports were from all parts of the State rather than any particular locality. This high monthly incidence has not been reached in several years.

Dog bite requiring antirabic treatment was reported 12 times.

Gonorrhea and syphilis were reported in about the usual numbers: 460 for the former, 208 for the latter.

Influenza. — 30 cases were reported for the current month.

Measles jumped from 313 cases to 578 cases. This does not represent a large report for this disease at this period of the year.

Lobar Pneumonia. — There were 353 cases of lobar pneumonia reported for this month as compared with 191 for last month. This represents the usual increase at this season of the year.

Scarlet fever increased from 431 cases in October to 660 for this month. This is about the usual number reported at this time.

Smallpox. — One case was reported. This was part of the outbreak reported last month.

Tuberculosis, Pulmonary. — There were 505 cases reported during this month; the total for last month was 499.

Typhoid Fever. — There were 59 cases of typhoid reported for this month. During November, 1920, there were 83 cases reported.

Whooping Cough. — There were 223 cases reported. This represents a small report.

RARE DISEASES.

Anterior poliomyelitis was reported from Amesbury, 1; Ayer, 1; Boston, 2; Braintree, 1; Chelsea, 1; Fitchburg, 1; Hopedale, 1; Leominster, 1; Marblehead, 1; Northampton, 1; Norwood, 1; Reading, 1; Salem, 1; Walpole, 1; total, 15.

Dog bite requiring antirabic treatment was reported from Billerica, 2; Boston, 2; Brookline, 1; Chelmsford, 1; Everett, 1; Fall River, 2; Lowell, 1; Taunton, 2; total, 12.

Encephalitis lethargica was reported from Bedford, 1; Boston, 4; Danvers, 1; Milford, 1; Somerville, 1; total, 8.

Epidemic cerebrospinal meningitis was reported from Belmont, 1; Beverly, 1; Boston, 11; Chicopee, 1; Lynn, 1; New Bedford, 1; Norwood, 1; Southbridge, 1; total, 18.

Hookworm was reported from Boston, 1.

Malaria was reported from Holyoke, 1.

Pellagra was reported from Boston, 1.

Septic sore throat was reported from Boston, 8; Methuen, 1; New Bedford, 1; Newburyport, 1; Westport, 1; West Springfield, 1; Winthrop, 1; total, 14.

Smallpox was reported from Worcester, 1.

Tetanus was reported from Fitchburg, 1; Pittsfield, 1; Springfield, 1; total, 3.

Trachoma was reported from Boston, 1; Cambridge, 1; Lynn, 1; Methuen, 1; Taunton, 1; Worcester, 1; total, 6.

Trichinosis was reported from Worcester, 1.

DISTRIBUTION.

All Communicable Diseases.

	November, **1921.**	November, **1920.**
Total cases (all causes)	5,421	6,344
Case rate per 100,000 population	139.1	163.9

Certain Prevalent Diseases.

	November, 1921.	November, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
			Fairhaven	(0)	8
			New Bedford	(15)	58
			Taunton	(5)	12
			Boston	(172)	297
			Brockton	(6)	31
			Brookline	(4)	10
			Newton	(10)	31
			Quincy	(10)	31
			Stoughton	(0)	5
			Danvers	(0)	10
			Everett	(10)	19
			Haverhill	(12)	29
			Lynn	(18)	50
Diphtheria:			Malden	(12)	40
Total cases	1,185	839	Melrose	(0)	12
Case rate per 100,000 population	30.4	21.6	Revere	(4)	11
			Salem	(5)	10
			Stoneham	(0)	10
			Wakefield	(1)	15
			Belmont	(1)	9
			Lawrence	(9)	27
			Somerville	(18)	28
			Waltham	(2)	13
			Blackstone	(0)	8
			Douglas	(1)	6
			Worcester	(29)	40
			Chicopee	(5)	22
			Northampton	(0)	23
			Springfield	(17)	42
			Montague	(1)	7
			Pittsfield	(3)	16
			Boston	(60)	202
			Milton	(0)	30
Measles:			Quincy	(1)	11
Total cases	578	1,647	Andover	(0)	109
Case rate per 100,000 population	14.8	42.5	Lawrence	(3)	18
			Medford	(3)	58
			Monson	(0)	13
			South Hadley	(0)	49
			New Bedford	(11)	18
			Cambridge	(14)	24
			Quincy	(6)	12
			Danvers	(0)	5
			Everett	(5)	15
			Ipswich	(0)	14
			Malden	(7)	17
Scarlet fever:			Saugus	(1)	6
Total cases	660	658	Andover	(1)	8
Case rate per 100,000 population	17.0	17.0	Waltham	(1)	12
			Gardner	(3)	8
			Oxford	(0)	6
			Southbridge	(0)	26
			Adams	(0)	20
			Greenfield	(4)	11
			Lee	(0)	16
			Lenox	(0)	6
			Pittsfield	(6)	14
Typhoid fever:					
Total cases	59	83			
Case rate per 100,000 population	1.5	2.1			
Whooping cough:			Franklin	(0)	11
Total cases	223	388	Quincy	(4)	8
Case rate per 100,000 population	5.7	10.0	Belmont	(0)	25
			Westford	(0)	30
			Worcester	(0)	19

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

Certain Prevalent Diseases — Concluded.

	November, 1921.	November, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.
Tuberculosis, pulmonary:			
Total cases	505	455	
Case rate per 100,000 population	12.9	11.8	
Tuberculosis, other forms:			
Total cases	48	65	
Case rate per 100,000 population	1.3	1.7	

December, 1921.

GENERAL PREVALENCE.

There were 5,940 cases of communicable diseases reported for this month. This represents a report of moderate size and was exceeded 2,000 cases by the report of December, 1920.

Anterior poliomyelitis was reported in 10 instances, which was 5 less than the previous month.

Chicken Pox. — There were 900 cases of this disease reported for the month. For this season of the year this is not a large monthly total.

Diphtheria. — There were 1,088 cases reported for the month; the total for last month was 1,185 cases. This, as last month, represents a large report and is the result of widespread incidence throughout the State.

Dog Bite requiring Antirabic Treatment. — There were 19 cases of this condition reported for the month. This is a large monthly total.

Gonorrhea and Syphilis. — Gonorrhea fell off from 460 to 372 for this month. Syphilis was reported in about the usual number, there being a total of 217 cases.

Influenza. — There were 46 cases of influenza reported during December.

Measles increased from 678 for November to 835 for this month. This is about the usual incidence of this disease at this season.

Lobar pneumonia was reported 382 times. This is about the same number as reported the previous month.

Scarlet fever increased from 661 for November to 740 for December. This is the usual history at this time.

Tuberculosis, Pulmonary. — There were 524 cases reported for the month, which is about the usual number.

Tuberculosis, other forms, was reported in 74 instances.

Typhoid fever was reported 52 times.

Whooping Cough. — There were 249 cases reported for the month. This is the second month that the reported incidence has been relatively small.

RARE DISEASES.

Anterior poliomyelitis was reported from Arlington, 1; Boston, 3; Haverhill, 1; Lawrence, 1; Melrose, 1; Norton, 1; Palmer, 1; Springfield, 1; total, 10.

Dog bite requiring antirabic treatment was reported from Boston, 1; Charlton, 1; Chelmsford, 4; Holyoke, 1; Lexington, 2; Lowell, 1; Lynn, 5; Newton, 1; Pittsfield, 1; Woburn, 1; total, 18.

Encephalitis lethargica was reported from Boston, 1; Chicopee, 1; Newton, 1; total, 3.

Epidemic cerebrospinal meningitis was reported from Boston, 1; Concord, 1; Everett, 2; Groton, 1; Holyoke, 1; Lynn, 1; Peabody, 1; Springfield, 1; Woburn, 1; total, 10.

Malaria was reported from Boston, 2.

Septic sore throat was reported from Arlington, 1; Boston, 4; Braintree, 1; Fairhaven, 1; Fall River, 1; Leominster, 1; Methuen, 4; Middleborough, 1; Newburyport, 3; Stoughton, 2; New Bedford, 3; total, 22.

Trachoma was reported from Boston, 2; Lynn, 1; Northbridge, 1; Springfield, 1; total, 5.

Typhus fever was reported from Boston, 1.

DISTRIBUTION.

All Communicable Diseases.

	December, 1921.	December, 1920.
Total cases (all causes)	5,940	7,915
Case rate per 100,000 population	152.2	204.6

Certain Prevalent Diseases.

	December, 1921.	December, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
			Fairhaven	(0)	8
			Fall River	(18)	22
			New Bedford	(21)	57
			Boston	(221)	305
			Brockton	(12)	80
			Newton	(3)	9
			Weymouth	(0)	5
			Beverly	(0)	9
			Lynn	(24)	52
Diphtheria:			Malden	(17)	38
Total cases	1,088	943	Melrose	(0)	13
Case rate per 100,000 population	27.9	24.4	Salem	(6)	15
			Lawrence	(17)	21
			Lowell	(9)	23
			Douglas	(0)	5
			Gardner	(0)	7
			Leominster	(1)	9
			Chicopee	(9)	23
			Holyoke	(5)	10
			Springfield	(7)	16
			Montague	(1)	10
			North Adams	(0)	8
			Pittsfield	(2)	17
			Milton	(1)	46
			Quincy	(2)	44
			Weymouth	(0)	10
			North Reading	(0)	34
Measles:			Andover	(0)	11
Total cases	835	1,876	Lawrence	(3)	42
Case rate per 100,000 population	21.4	48.5	Medford	(11)	42
			Somerville	(9)	15
			Monson	(0)	92
			South Hadley	(0)	38
			Springfield	(7)	16
			Greenfield	(0)	30
			Montague	(0)	43
			Fall River	(9)	14
			New Bedford	(9)	17
			Boston	(116)	154
			Brockton	(6)	13
			Newton	(1)	9
			Quincy	(3)	31
			Stoughton	(0)	12
Scarlet fever:			Beverly	(1)	5
Total cases	740	917	Chelsea	(5)	13
Case rate per 100,000 population	19.0	23.7	Everett	(9)	23
			Malden	(5)	35
			Peabody	(0)	8
			Somerville	(16)	21
			Waltham	(8)	14
			Gardner	(4)	12
			Adams	(0)	10
			North Adams	(1)	6
			Pittsfield	(4)	19
Typhoid fever:					
Total cases	52	39			
Case rate per 100,000 population	1.3	1.0			
			Newton	(9)	29
			Sharon	(0)	10
Whooping cough:			Weymouth	(0)	7
Total cases	249	562	Belmont	(0)	24
Case rate per 100,000 population	6.4	14.5	Lexington	(0)	5
			Gardner	(0)	6
			Great Barrington	(0)	5
			Stockbridge	(0)	7

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

Certain Prevalent Diseases — Concluded

	December, 1921.	December, 1920.	Cities and Towns noticeably exceeding their Median Endemic Indexes.
Tuberculosis, pulmonary:			
Total cases	524	578	
Case rate per 100,000 population	13.4	14.9	
Tuberculosis, other forms:			
Total cases	74	53	
Case rate per 100,000 population	1.9	1.4	

January, 1922.

GENERAL PREVALENCE.

There were 6,755 cases of communicable diseases reported for this month as compared with 5,903 cases reported for December. This does not represent a report of large size when it is considered that this is a season of greatest prevalence of most of the important communicable diseases. There were 9,185 cases reported for the same period of 1921.

Anterior poliomyelitis was reported 8 times during the month.

Chicken Pox. — There were 834 cases of this disease reported for January; the total for last month was 900 cases.

Diphtheria showed a lessened incidence with 911 cases as compared with 1,088 cases for the previous month.

Dog Bite requiring Antirabic Treatment. — There were 17 persons bitten by rabid dogs during this month.

Encephalitis lethargica was reported in 10 instances.

German Measles. — There were 40 cases of this disease reported for the month.

Gonorrhea and Syphilis. — Gonorrhea showed a slightly increased incidence while syphilis showed a slightly decreased incidence; the totals for the month were 404 for the former and 200 for the latter.

Influenza increased from 46 cases for the preceding month to 135 cases for this month. For January, 1921, 158 cases were reported.

Measles increased from 835 cases for December to 1,275 for this month. This does not represent an unusual number as the total for January, 1921, was 2,230 cases.

Pneumonia, Lobar. — There were 571 cases of lobar pneumonia reported for the month. This increase over the incidence of the previous month is not unexpected. The total for January, 1921, was 587 cases.

Scarlet fever showed a like general increase; the total for the month was 923 cases.

Tuberculosis, Pulmonary. — There were 480 cases of pulmonary tuberculosis reported for the month. This is about the usual number.

Tuberculosis, other forms, was reported in 61 instances.

Typhoid Fever. — There were 31 cases reported for this month. This is the least monthly total in nearly two years.

Whooping Cough increased slightly to 326 cases. This represents a small monthly incidence.

RARE DISEASES.

Anterior poliomyelitis was reported from Cambridge, 1; Lawrence, 2; New Bedford, 1; Palmer, 2; Winchendon, 1; Woburn, 1; total, 8.

Anthrax was reported from Peabody, 1.

Dog bite requiring antirabic treatment was reported from Arlington, 1; Cambridge, 1; Lowell, 6; Lynn, 3; North Attleborough, 1; Pittsfield, 1; Swampscott, 3; Winthrop, 1; total, 17.

Dysentery was reported from Fall River, 1.

Encephalitis lethargica was reported from Beverly, 1; Boston, 1; Fall River, 1; Lynn, 1; Newburyport, 2; Newton, 1; Peabody, 1; Somerville, 1; Watertown, 1; total, 10.

Epidemic cerebrospinal meningitis was reported from Boston, 2; Lowell, 1; Southbridge, 1; South Hadley, 1; Springfield, 1; Winchendon, 1; Worcester, 1; total, 8.

Malaria was reported from Boston, 1.

Pellagra was reported from Salem, 1; Wrentham, 1; total, 2.

Septic sore throat was reported from Boston, 4; Bourne, 1; Fall River, 1; Haverhill, 1; Leominster, 1; Lowell, 1; Lunenburg, 1; Medford, 1; Springfield, 1; Wellesley, 1; total, 13.

Tetanus was reported from Boston, 1; Leominster, 1; total, 2.

Trachoma was reported from Norwood, 1; Tewksbury State Infirmary, 1; total, 2.

DISTRIBUTION.

All Communicable Diseases.

	January, 1922.	January, 1921.
Total cases (all causes)	6,755	9,185
Case rate per 100,000 population	171.6	235.4

Certain Prevalent Diseases.

	January, 1922.	January, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:			Fairhaven	(0)	6
Total cases	911	965	Fall River	(22)	35
Case rate per 100,000 population	23.1	24.7	New Bedford	(15)	35
			Braintree	(1)	7
			Brockton	(10)	75
			Newton	(11)	18
			Beverly	(2)	8
			Malden	(13)	29
			Salem	(3)	14
			Stoneham	(1)	8
			Wakefield	(1)	10
			Ludlow	(0)	5
			Northampton	(2)	7
			Pittsfield	(3)	13
Measles:			Hull	(0)	5
Total cases	1,275	2,230	Quincy	(11)	79
Case rate per 100,000 population	32.4	57.1	Melrose	(6)	26
			Peabody	(3)	10
			Lawrence	(14)	80
			Medford	(14)	71
			Methuen	(1)	33
			North Andover	(0)	27
			Somerville	(44)	57
			Waltham	(4)	65
			Holyoke	(2)	9
			Palmer	(0)	136
			Springfield	(16)	27
			Greenfield	(7)	47
			Montague	(0)	26
Scarlet fever:			Chatham	(0)	5
Total cases	923	1,135	Fall River	(13)	18
Case rate per 100,000 population	23.4	29.1	Plymouth	(0)	8
			Boston	(145)	203
			Cambridge	(26)	40
			Quincy	(6)	23
			Stoughton	(0)	47
			Wellesley	(2)	6
			Beverly	(3)	7
			Everett	(9)	16
			Malden	(13)	31
			Saugus	(3)	17
			Dudley	(0)	27
Typhoid fever:					
Total cases	31	38			
Case rate per 100,000 population	.8	1.0			
Whooping cough:			Attleboro	(1)	6
Total cases	326	669	New Bedford	(12)	15
Case rate per 100,000 population	8.3	17.1	Brockton	(10)	28
			Foxborough	(0)	11
			Marlborough	(0)	13
			Weymouth	(0)	5
			Belmont	(0)	14
			North Andover	(0)	19
			Waltham	(2)	7
			Great Barrington	(7)	23
Tuberculosis, pulmonary:					
Total cases	480	534			
Case rate per 100,000 population	12.2	13.7			
Tuberculosis, other forms:					
Total cases	61	70			
Case rate per 100,000 population	1.5	1.8			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of November and December, 1921, and January, 1922, samples were collected in 118 cities and towns.

There were 1,179 samples of milk examined, of which 187 were below standard, 19 samples had the cream removed, and 42 samples contained added water.

There were 705 samples of food examined, of which 176 were adulterated. These consisted of 5 samples of cider which contained benzoate; 106 samples of eggs, 87 of which were cold storage not marked, 18 samples were stale eggs sold as fresh eggs, and 1 sample was decomposed; 62 samples of sausage, 53 of which contained starch in excess of 2 per cent, and 9 samples contained coloring matter; 2 samples of vinegar which were low in acid; and 1 sample of maple sugar which contained cane sugar.

There were 317 samples of drugs examined, of which 108 were adulterated. These consisted of 1 sample of lime water and 107 samples of spirit of nitrous ether, all of which were not U.S.P.

State institutions submitted 6 samples of coal for analysis.

There were 98 hearings held and 6 warnings issued pertaining to violations of the food and drug laws.

The police departments submitted 1,178 samples of liquor for examination, 1,066 of which were above 2.75 per cent in alcohol. The police departments also submitted 43 samples of poisons for examination, 24 of which were morphine, 10 cocaine, 3 opium, 1 citrate of magnesia containing tartar emetic, and 5 samples were examined for poison, with negative results.

During the past two months 793 samples of liquor were received from 48 towns. During the past twelve months, 4,142 samples were received, the highest on record.

There were 97 convictions for violations of the law, $1,820.20 in fines being imposed.

Harry Chong, James C. Cochiafis, Christus Hindakis, Samuel Lampros, Peter Lemnolis, George H. Palmer and Samuel Truman, all of Springfield; Charles Avezzi and Louis Shinost of West Springfield; Leon F. Favreau of Southbridge; Louis Sousa of Fall River; and Manuel Sousa of Dartmouth, were all convicted for violations of the milk laws.

Samuel Gelt, Joseph Snigorski and David Ozorowsky of Lawrence; Stanislaw Rapolus of Indian Orchard; the Boston Sausage and Provision Company, the Boston Egg Company, Inc., each on 2 cases, and the Park Sausage and Provision Company, on 3 counts, all of Boston; Angelo Terruso of Dorchester; John Krauss, Jacob Schmidt and George Von Bank, all of New Bedford; David Almond and John Ashworth, both of Lowell; the Boston Sausage Company of Worcester; the United Fisheries Company of Gloucester; and Alfred Thompson of North Andover, were all convicted for violations of the food laws. Samuel Gelt of Lawrence, the Boston Egg Company, Inc., of Boston, 2 cases, and the Boston Sausage Company of Worcester, all appealed their cases.

Frank F. Sweet of Winthrop; The Great Atlantic and Pacific Tea Company, Louis Levine and Ralph Shephard of Newton; H. P. Hood & Son at Waltham; Herbert Harring of East Boston; and Peter John of Boston, were all convicted for false advertising. The Great Atlantic and Pacific Tea Company at Newton, and H. P. Hood & Son at Waltham appealed their cases.

The Shawmut Egg Company of Boston was convicted for misbranding.

Joseph Alexander Bulduc and Randall LeBeau of Fall River were both convicted for violations of the drug laws.

Constantine Vurgaropoulos, Alexander Beaudry, Hipolata Buslewich, Harry J. Lappin, Angelo Tousignaut, Vassel Kutensky and Evgelos Lantis, all of Lowell; Lucien Riopel, Herbert L. Baldwin, Louis Gold, Charles Goldman, Andrew T. Korontzis, Joseph Lachut, John D. Leary and Frank Siedlecksi, all of Holyoke; George F. Siefit, Brockelman Brothers, Austin W. Burke, Nathan Gould, Henry Grady, William Powers, Martin Ruane and Gustav Ryll, all of Clinton; Frank Zucca, David Lavin and James J. Starr, all of Springfield; Rocco Christopher, Romisis Dounis, Archilles Giardini, Patrick Loccont, Spiros Malakos, Charles Peters and George Podzuidnas, all of Haverhill; Max Mandel, Santo Rezzo, Jacob Studnick, Isaac Yenofsky and Samuel Gelt, all of Lawrence; Oscar Paquett of Fall River; Frank Bertini of Salem; James J. Hilferty of Maynard; Antoine P. Carreiro, Harry Curhan, Antoine Grace, James B. Silva, Manuel P. Silva and the United Fisheries Company, all of Gloucester; Ignacio Lococo and Michael Spinelli, both of Northampton; and Mili Loli of Hudson, were all convicted for violations of the cold-storage laws. Andrew T. Korontzis of Holyoke, and Max Mandel and Jacob Studnick, both of Lawrence, all appealed their cases.

Jacob Pfersick and Julius Sugarman of Greenfield; Moses Wiles of Brewster; Thomas E. Galloway of Lawrence, on 2 cases; Edward Bleistein of Medford; and Maurice Pugach of Malden, were all convicted for violations of the slaughtering laws.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Three samples of milk having the cream removed were produced by Emery L. Harvey of Westport.

Eighteen samples of milk which contained added water were produced by Antone Bennevids of Swansea.

Three samples of cider which contained benzoate were sold by the Victory Cider Company of Lawrence, and 1 sample which contained benzoate was sold by George Nicolopulous of Salem.

One sample of maple sugar which contained only 10 per cent maple sugar was sold by the Central Fruit Store of New Bedford.

Sausage which contained starch in excess of 2 per cent was obtained as follows: 7 samples made by the Boston Sausage and Provision Company, 3 samples made by the Park Sausage and Provision Company, and 2 samples made by C. A. Weitz, all of Boston; 8 samples made by Hamedos Hereux, 3 samples made by David Almond, and 1 sample made by Wilfred Moreau, all of Lowell; 2 samples made by the Boston Sausage Company of Worcester; 2 samples made by H. J. Furneaux and 1 sample made by Snigorski & Meisser, both of Lawrence; 2 samples made by Michael Zasadziuski & John Rzeszotarski, and 1 sample made by the Nowak & Godek Company, all of Holyoke; and 1 sample each made by Balkus Sausage Company of Lynn and J. Janiss of Stoughton.

Sausage which contained coloring matter was obtained as follows: 2 samples each from the New England Sausage Company and Jacob Schmidt, both of New Bedford; and 1 sample each from the Boston Sausage and Provision Company, and the National Sausage Company, both of Boston, and Sam Gelt of Lawrence.

One sample of vinegar which was low in acid was obtained from the Brockton Bottling Company of Brockton.

There were four confiscations made, consisting of 25 pounds of decomposed broilers, 475 pounds of dried-out beef tails, 50 pounds of unstamped veal and 100 pounds of tainted miscellaneous sausage.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of October, 1921: 498,330 dozens of case eggs, 237,094 pounds of broken-out eggs, 2,476,929 pounds of butter, 874,062 pounds of poultry, 5,038,185 pounds of fresh meat and fresh meat products, and 2,997,775 pounds of fresh food fish.

There were on hand Nov. 1, 1921, 9,946,170 dozens of case eggs, 619,486 pounds of broken-out eggs, 14,221,288 pounds of butter, 1,725,167 pounds of poultry, 15,005,187 pounds of fresh meat and fresh meat products, and 15,324,245 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of November, 1921: 539,700 dozens of case eggs, 234,890 pounds of broken-out eggs, 1,547,933 pounds of butter, 1,930,448½ pounds of poultry, 4,392,707 pounds of fresh meat and fresh meat products, and 1,520,141 pounds of fresh food fish.

There were on hand Dec. 1, 1921, 6,101,850 dozens of case eggs, 602,192 pounds of broken-out eggs, 12,003,215 pounds of butter, 3,232,052¾ pounds of poultry, 15,519,279 pounds of fresh meat and fresh meat products, and 13,283,899 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of December, 1921: 530,850 dozens of case eggs, 133,984 pounds of broken-out eggs, 718,064 pounds of butter, 3,942,453 pounds of poultry, 4,455,540 pounds of fresh meat and fresh meat products, and 1,348,188 pounds of fresh food fish.

There were on hand Jan. 1, 1922, 2,457,300 dozens of case eggs, 410,123 pounds of broken-out eggs, 8,633,375 pounds of butter, 6,390,054 pounds of poultry, 15,664,301 pounds of fresh meat and fresh meat products, and 10,445,409 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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The Connecticut Valley District,	Harold E. Miner, M.D., Springfield.
The Berkshire District,	Oscar A. Dudley, M.D., Pittsfield.

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[1] Resigned Feb. 15, 1922.

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MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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INTRODUCTION.

THAT the mental health of a community is as important as its physical welfare is an obvious, but generally disregarded, truth. Obvious, because without mental health the most vigorous cannot maintain a satisfactory economic adjustment; generally disregarded, because that residuum of medieval superstition (stigma) still clings tenaciously to our mentally sick, and we are prone to disregard that which is unpleasant and little comprehended. Why rheumatism or heart disease to some should be almost matters of family pride, and an attack of mental illness a disgrace, is one of the phenomena of human psychology.

There are encouraging signs on the horizon, however, that augur well for a reversal of this generally accepted attitude, and each month sees a gratifying increase in numbers of those who voluntarily seek help for mental difficulties at our psychopathic clinics and dispensaries.

Much of this change in public feeling must be credited as the direct result of a long campaign of education by mental hygiene organizations, and this brings us to an explanation of what mental hygiene really is and what it aims to accomplish.

Originally conceived as a simple organization to better the hapless lot of the insane in our State and private hospitals (or asylums as they were then called) and to raise their standards of care, mental hygiene has undergone a long process of evolution until recently it has emerged from a fog of misconception and prejudice to take its rightful place well to the fore of the Nation's great public health movements. Indeed, that dean of all public health experts, Dr. Haven Emerson, recently said: "We have arrived at a point in the organization of our national effort for health where advance in the fields already preëmpted and liberally supported by public opinion and resources must await for entire success upon a fair beginning and progress in that most delicate and difficult, and yet most promising undertaking of all, — the prevention of nervous disorders and mental defects."

Prevention is the basic idea on which mental hygiene functions. For it has been amply established that a certain amount of nervous and mental disease is unnecessary and can be prevented. Prevention is not only possible for some of the frank insanities, so called, but to even a greater extent it can be applied to many of that vast horde of neurotic disorders commonly known as "nervousness" and "nervous breakdowns" that afflict so large a proportion in every community.

Mental hygiene as a public health movement is a difficult concept to some, and yet founded on the rock of *prevention,* such conception is wholly logical. We have long known that attention to physical hygiene, proper sanitation, proper nutrition, proper safeguarding against disease of the teeth, lungs and stomach has gone far to prevent physical illness and to increase physical welfare, but until a comparatively short time ago we knew little of the influence of mental factors in maintaining the role of all-around community health. Thus it is that even now avowedly general health programs are enthusiastically formulated without slightest reference to *mental health.*

The modern school child is passed through an almost daily gamut of physical inspections; scrupulous attention is given to individual fragments of his anatomy, — to his tonsils and adenoids, to the condition of his skin, his weight, his eyes, — but until recently scant attention has been given to the whole child himself, — to the *tout ensemble,* — to his personality and character. And when, in spite of these useful and important physical safeguards, he becomes a truant or, perhaps, steals or lies or runs away a sufficient number of times, we are prone to wash our hands of him, call him a "stubborn child," feeling that all possible has been done to make his body normal, and invoke the majesty of the law as a preliminary to the "reform" school. The "why" of his conduct disorder seldom appears important enough to warrant investigation, and the easily ascertained fact that he may possess an ignorant or defective mother lacking barest fundamentals of child-training, or, perhaps, that like "Topsy" he "just grew" in an environment of perpetual wrangling, dishonesty and lack of control, remains undiscovered through lack of knowledge of how important such factors are.

The present status of the mental health program in Massachusetts is one of public education in means of prevention. This implies an early recognition of warning symptoms and early treatment. It is a program that cannot be quickly consummated. Superstition, prejudice, ignorance, — all in turn must be overcome, and a willingness instilled to recognize certain traits and symptoms, commonly denoted by mutual agreement as "queer" or "cussed," as being really mental in origin.

Such a program cannot be carried out successfully by the medical profession alone. Just as the tuberculosis movement required the active co-operation of a large majority of the public for success, so does the mental hygiene movement require widespread interest and help on the part of the community at large to achieve its goal. The fight against man's last specter (mental disease) is every one's. There is no home unmenaced, and to every one will belong the spoils of victory.

The following classification has been devised to explain the chief types of nervous and mental disorders that under proper conditions are susceptible of prevention by the application of mental hygiene principles: —

1. Serious cases of mental disorder, so-called "insanity."
2. Incipient and mild cases of mental disorders.
3. Mental disorders reinforcing or simulating physical invalidism. Neurasthenia, hysteria, etc.
4. Mental disorders masquerading under conditions labeled from a legal or sociological standpoint:
    - (*a*) Delinquency.
    - (*b*) Alcoholism and drug addiction.
    - (*c*) Prostitution (with illegitimacy and venereal disease).
    - (*d*) Vagrancy. Dependency.
5. Mental disorders and defects in the nursery and the school:
    - (*a*) The feeble-minded child.
    - (*b*) The nervous child.
    - (*c*) The socially inferior child. Behavior problems.
6. Social and economic disorders, the roots of which are to be found in the mental difficulties of peculiar individuals who influence large groups.

Each of the following articles has been written by an expert in his particular field of psychiatry, and in each the writer has endeavored to illustrate how mental hygiene, as a health movement working for prevention, can best be applied.

SERIOUS CASES OF MENTAL DISORDER OR SO-CALLED "INSANITY."

By Harry C. Solomon, M.D., Chief of Therapeutic Research, Boston Pyschopathic Hospital, and Instructor in Psychiatry and Neuropathology, Harvard Medical School.

THE cases of mental disease in which the symptoms become marked are characterized by the laity as instances of insanity.

It should be thoroughly understood that from the medical standpoint insanity is a useless term. However, let us briefly review the types of mental disease with symptoms of such a nature that it frequently becomes necessary to secure medical supervision in an institution. The cases may be divided into two major groups: (A) those cases in which a definite recognizable organic disorder exists, from which disorder the mental symptoms arise; and (B) those cases in which no such organic disorder has been demonstrated, and which we are prone to consider as a group of functional psychoses, that is, not organic disorders.

A. The organic group consists of cases in which there is either —

1. A pathological process having its primary seat in the central nervous system, as —

(*a*) General paresis.
(*b*) Brain tumor.
(*c*) Cerebral arteriosclerosis.
(*d*) Senile dementia.
(*e*) Other degenerative lesions of the brain.
(*f*) Multiple sclerosis and the like.
(*g*) Injury to the brain as from a blow on the head, a gunshot wound, etc.

2. An injury of the brain secondary to disease in the body, such as —

(*a*) Febrile delirium.
(*b*) Uremic toxemia.
(*c*) Injury due to disorders of the endocrin system, as exophthalmic goiter, myxœdema.

3. An injury of the brain due to exogenous poisons taken into the body, as alcohol, drugs, metallic poisons (lead, mercury).

The consideration of the diseases of this group takes in the methods in general use in internal medicine. It is a matter of treatment of the underlying disease, and the results will depend largely upon whether or not the disease from which the patient is suffering is amenable to medical or surgical treatment, or whether the body is able to cope with the poisons if no more are added to the system. Thus the treatment of mental disease arising from brain tumor is operation. The treatment of febrile delirium is the treatment of the disease which is causing the fever and delirium. The treatment of general paresis is the treatment of a syphilitic infection, and the treatment of alcohol, drugs and other exogenous poisons is the discontinuance of the poisons and supportive treatment.

From the standpoint of prophylaxis this organic group offers very little theoretical difficulty. Some of the conditions, such as brain tumor, senile dementia and the other degenerative lesions, we are perfectly helpless to prevent. On the other hand, the prevention or adequate treatment of acquired syphilis should prevent general paresis. Abstinence will prevent the diseases arising from alcohol and drugs. Hygiene will eliminate the possibility of metallic poisons, and the reduction of infections will diminish the resultant mental symptoms *pari passu*.

B. The second of our major divisions of mental disorder is that in which no definite organic disease can be demonstrated as the cause of the mental symptoms. These cases must be considered at present from the psychological standpoint.

From a practical standpoint we may think of the functional disorders under two headings: (1) those in which recovery without defect occurs, and (2) those in which there is a tendency to chronicity or deterioration, or improvement with defect.

The cases with good prognosis are in a majority of instances cases in which the disorder is chiefly in the emotional field, and receive, as a rule, the medical diagnosis of manic-depressive psychosis or involutional melancholia. While the symptoms may be exceedingly marked and disturbing, the prognosis is, on the whole, good; in fact, complete recovery is the rule in cases of manic-depressive psychosis. Although there is a tendency for a recurrence of the disorder, there is the same good prognosis as to recovery. The duration of an attack varies from a few days to eighteen months, but, on the average, is a matter of five to ten months. The outlook of those suffering from this form of disease is, therefore, often better than that of some patients whose mental symptoms are very much milder, but whose incapacity may last for a much greater period, and who may, therefore, suffer more and be less efficient as units in the social structure.

The cases of involutional melancholia are apt to last longer than those of manic-depressive psychosis, and the prognosis is not as satisfactory, as some of these patients do not recover. In the majority of cases, however, the prognosis is good.

The second large group of functional psychoses are those which have a tendency to deterioration and chronicity, and are usually considered under the medical diagnosis of dementia præcox. These cases are characterized by dissociation or splitting of the psyche, and tend to show disorder of thought (delusions, hallucinations). Beginning, on the average, at the adolescent period and having a bad prognosis, these cases are the saddest and most important of the mental disorders. They likewise represent a high proportion of the cases which enter the State hospitals for mental diseases.

Finally, mention should be made of paranoia, which is a condition characterized by the development of a delusional system which makes the patient unfit for ordinary social intercourse and which progresses slowly and insidiously. This condition represents the progressive development of a twist of the mind rather than a distinct mental disease.

As the so-called functional psychoses have no known anatomical basis, they must be considered on a psychological plane. This does not mean that continued search for a physical basis should not be made, but rather that from a practical standpoint they must be studied and treated from a purely mental point of view. While heredity and constitutional factors have a bearing upon the development of these psychoses, they are so intangible that they cannot be considered of any great practical application. Mental factors, life experiences are the elements that must be studied in these cases. Prophylaxis should be directed toward the early development of the individual. Every case should be considered on its own merits and studied from the standpoint of the individual himself, his personal endowments, the past experiences and difficulties he has encountered.

INCIPIENT AND MILD CASES OF MENTAL DISORDER.

By Donald Gregg, M.D., Wellesley, Mass.

INCIPIENT and mild cases of mental disorder involve the emotions much more commonly than the intellect. By our intellect, we mean the portion of our mental processes involving memory, calculations, theories, plans, etc., which have to do usually with the material world outside of ourselves. By our emotions, we mean our feelings that result from stimuli that act upon us and produce a reaction. Adding two and two, or remembering who was president of the United States in 1900 is essentially an intellectual activity; jumping when a door slams, or crying over news of our mother's death, is essentially an emotional activity.

The emotional activity that is most commonly associated with mild cases of mental disorder is the emotional activity that results when our big instincts are thwarted, or are in danger of being thwarted, in other words, fear, in all its varying forms, conscious and unconscious. We have an instinct of self-preservation and we are afraid of illness, or symptoms that we believe to indicate illness, or financial failure or difficulties that threaten our social status. We have an instinct to do as others do, and are distressed if we cannot have a straw hat when every one else is wearing one, or wear long trousers when every other boy in our class puts them on. We have an instinct to pass on life to another generation, and we are worried if we cannot marry and have a home of our own, or if we come to think that there is something wrong with the part of our anatomy that has to do with sex activity.

Fears of one sort and another produce most of the cases of mild mental disorder. The problem is, How can we be freed from these fears? Where do our emotions come from? From our environment as environmental strains, from our bodies as pains, and from our minds as worries. And of these three sources the most common is our *mind*. Hard work alone, or pain alone, seldom if ever produces mental disorder, but work plus worry, pain plus worry, or sleeplessness plus worry (not sleeplessness alone) may result at times in mild mental disorder. Without environmental strain plus worry, without pain plus worry, without plain worries, we would soon be free of most of the causes of mild mental disorders. By adjusting ourselves happily to our environment; by keeping well through proper but not excessive attention to our physical disabilities, or, if we get sick, by keeping our attention on the actual physical disability alone and not adding to it fears as to what may happen next because of our sickness; by cutting out the worries by coming to understand our troubles, or, if we cannot solve them, by gaining a trust in a Higher Power that will bring things out all right in good time, we can keep free of mild cases of mental disorder.

Of course individuals vary greatly in the degree to which they react to emotional stimuli, and any given individual varies from time to time in his reactions. John may suffer from having a discord struck on a piano, while Charles does not notice the discord at all. Alice may not be frightened by the smell of smoke in a house, while Mary, whose house burned down last month, may be greatly worried by the faintest suggestion of smoke. Henry may wake up after sleeping on his arm and be a bit amused to find his hand numb, while William, whose father has just had a shock involving his left side, may be quite upset when he finds his arm numb from the same cause that failed to distress Henry. When an individual is chronically so sensitive as to be incapacitated by stimuli that produce little effect on most people, he is considered to be in a psychopathic state of mind, and must learn to control his reactions to these stimuli. This is best done by occupation that diverts his attention from his sensations, or by stirring up other and more important and engrossing stimuli; thus, many a psychopathic individual has found health when happily at work, and many a "nervous invalid" in time of crisis has become a successful leader.

Knowledge is power most truly when we consider the knowledge of how our minds control our activities and lessen or augment our mental health.

MENTAL DISORDERS REINFORCING OR SIMULATING PHYSICAL INVALIDISM, "NEURASTHENIA," "HYSTERIA" AND "NERVOUSNESS."

By Abraham Myerson, M.D., Assistant Professor of Neurology, Tufts Medical School, and Consulting Neurologist of the Psychopathic Hospital, Boston.

THERE are certain diseases which are dreaded by every one largely because they threaten life, — such diseases as tuberculosis, cancer, heart disease, pneumonia, etc. Contrasted with these are diseases whose main and outstanding threat is to happiness and efficiency since life itself is not shortened nor threatened by them. These diseases are lumped together in the lay mind under the term "nervousness," which like many another widespread term has no real scientific standing. The term "psychoneurosis" is used by medical men to include this group of diseases, and the term itself implies that here are nervous and mental disorders in which no alteration can be found in any part of the nervous system. In this particular, these conditions differ from such diseases as locomotor ataxia, cerebral hemorrhage and tumor of the brain, because there are marked changes in the structure of the nervous system in the latter troubles. One might compare the psychoneuroses to a watch which needed oiling or cleaning, or merely a winding up, as against one in which a vital part was broken.

These psychoneuroses are divided by physicians into three kinds, neurasthenia, psychasthenia and hysteria. Without going too extensively into the symptoms of each of these three groups of diseases, it may be stated that fundamentally neurasthenia is marked by an increased liability to fatigue. The tired feeling that comes on with a minimum of exertion, worse on arising than on going to bed, is its distinguishing mark. Sleep, which should remove the fatigue of the day, does not; the victim takes half of his day to get going; and at night, when he should have the delicious drowsiness of bedtime, he is wideawake and disinclined to go to bed or sleep. This fatigue enters into all functions of the mind and body. Fatigue of mind brings about lack of concentration, an inattention, and this brings about an inefficiency that worries the patient beyond words as portending a mental breakdown. Fatigue of purpose brings a listlessness of effort, a shirking of the strenuous, the more distressing because the victim is often enough an idealist with overlofty purposes. Fatigue of mood is marked by depression of a mild kind, a liability to worry, a lack of enthusiasm for those one lives with or for the things formerly held dearest. And, finally, the fatigue is often marked by a lack of control over the emotional expression so that anger blazes forth more easily over trifles, and the tears come upon even a slight vexation. To be neurasthenic is to magnify the pins and pricks of life into calamities, and to be the victim of an abnormal state that is neither health nor disease.

In addition to this central group of symptoms are (1) pains and aches of all kinds which are really more often disagreeable feelings rather than true pains, (2) changes in the appetite and in the condition of the bowels, (3) insomnia or disturbed restless slumber. We look to the bed as a refuge from our troubles, as a sanctuary wherein is rebuilded our strength. We may link work and sleep as the two complementary functions necessary for happiness. If sleep is disturbed, so is work, and with that our purposes are threatened. So disturbed sleep has not only its bodily effects but has marked results in the effect on happiness.

Fundamental in the symptoms of neurasthenia is fear. This fear takes two main forms: first, the worry over the life situation in general, fear which extends to all the comings, goings and doings of life, a form of fear-thought which is both a cause of neurasthenia and a symptom; and, second, a special form of worry called hypochondriacism, which essentially is fear about one's own health. The hypochondriac magnifies every flutter of his heart into heart disease, every stitch in his side into pleurisy, every cough into tuberculosis, every pain in the abdomen into cancer of the stomach, and every headache into the possibility of brain tumor or insanity.

Such are a few of the main symptoms of neurasthenia. It may range from mere fatigue, pain and insomnia to a profound loss of energy, with fear, anxiety and almost complete prostration.

By the term psychasthenia is understood a group of conditions in which the bodily symptoms, as fatigue, sleeplessness, loss of appetite, etc., are either not so marked as in neurasthenia or else are overshadowed by other more distinctly mental symptoms. These mental symptoms are three main types: first, a tendency to recurring fears of all kinds and descriptions, fears which have received formidable Greek names but which are fears of open places, of closed places, of being alone, of dirt, of disease, of all kinds and manners of situations. Second, there is a tendency to obsessive ideas and doubts which persists in coming against the will of the patient. In extreme psychasthenia the difficulty of making up the mind, of deciding, becomes so great that a person may suffer an agony of internal debate about crossing the street, putting on the clothing, eating the meals, in fact about every detail of acting and thinking. Third, there is a group of impulsions and habits. The impulsions are sometimes absurd, as when a person feels compelled to step over every crack, to touch the posts along the journey, or to take three steps at a time. The habits range from the desire to bite one's nails to the quick, which is so common in children and which persists in the psychasthenic adult, to the odd grimaces, facial contortions, blinking of the eyes and cracking of the joints of the inveterate "tickeur".

The third great psychoneurosis is hysteria, which almost defies a short account. I shall very briefly mention the main types of symptoms. In the first place there is a hysteric temperament and an emotional instability, with a tendency to prolonged and freakish manifestations. Fundamental in the personality of the hysteric is this unstable emotionality, which is, however, secondary to an egotistic, easily wounded nature, craving sympathy and respect, admiration and achievement, but unable legitimately to earn them. Next is a group of symptoms, the so-called paralyses, which may involve any part of the body and persist in certain cases for years. These paralyses yield remarkably to any energizing influence like good fortune, the compelling personality of a physician, clergyman or healer (the miracle cure) or a serious danger.

Comparable to the paralyses are queer losses in sensation which sometimes take the form of hysterical blindness, of deafness, and which like the paralyses yield at times in bizarre manner to bizarre influences. In the days of witch hunting these anæsthesias were called stigmata and considered the diabolical marks of the witch. Especially striking in hysteria are the curious changes in consciousness that take place. These range from what seem to be fainting spells to trances sometimes lasting for a long time. These trances have been used by mystics of all kinds and play an important part in the history of mankind. In olden days the Delphian oracles were people who had the power of throwing themselves into these hysteric states, and to-day their descendants in hysteria are the crystal gazers, the mediums, the automatic writers, that by a mixture of hysteria and faking deceive the simple and credulous.

We may discuss as causative of these three conditions certain fundamental situations. We must start with the statement that mind and body are one, that what happens to one physically may change the whole trend of thinking, feeling and acting, and what happens to one mentally, either as an idea or emotion, may change the workings of the body, disturbing sleep, digestion and the coordinated action of the great organs of the body. All mankind knows this in the sense that all language crystallizes these beliefs, but it is rarely taken into account either by medical men or the laity.

Thus we may establish as causative of these states certain physical situations. They may follow exhausting illness, surgical operation, difficult childbirth, and in any situation which drains the energy and resources of the organism. Such conditions are common after influenza, pneumonia, and after those surgical operations where the patient is allowed too quickly to get back to his duties. One of the crying needs of every community is an institution where people may rest after an exhausting illness.

Just as surely as physical situations may cause neurasthenia, psychasthenia or hysteria, so mental situations may cause them, and, in fact, are undoubtedly more important in the majority of cases in their genesis. There are situations in which fear arises as a sudden and overpowering emotion, such as the battlefield or in the perilous places in industry or on the streets of the cities, and occasionally even in the safest and coziest nook of the home. The traumatic neurosis, so called, has its origin, at least in part, in the de-energizing result of fear, and in the persistence of the emotion for many and many a day to come. For fear may act as a most potent drug, and its physical effects range from the cold chill, the rapid heart, the sharp, painful respiration and the all-gone feeling in the abdomen, to the most complete unconsciousness. Indeed, all emotions are as much physical as mental, and he is a shallow thinker and a poor physician who dismisses the emotional state of the patient as unworthy his most careful and detailed attention.

But in addition to these sudden overpowering emotional states there are more constant mental situations of a disagreeable kind. Whether there is a subconsciousness or not, this can be affirmed — that every human being is a pot boiling with desires, passions, lusts, wishes, purposes, ideas and emotions, some of which he clearly recognizes and clearly admits, and some of which he does not clearly recognize and which he would deny. These desires, passions, purposes, etc., are not in harmony one with another; they are often irreconcilable, and one has to be smothered for the sake of the other. Thus a sex feeling that is not legitimate, an illicit forbidden love has to be conquered for the sake of the purpose to be religious or good, or the desire to be respected. So one may struggle against a hatred for a person whom one should love, — a husband, a wife, an invalid parent, or child whose care is a burden, — and one refuses to recognize that there is such a struggle. So one may seek to suppress jealousy, envy of the nearest and dearest; soul-stirring, forbidden passions; secret revolt against morality and law which may (and often does) rage in the most puritanical breast.

In the theory of the subconscious these undesired thoughts, feelings, passions, wishes are repressed and pushed into the innermost recesses of the being, out of the light of the conscious personality, but, nevertheless, acting on the personality, distorting it, wearying it.

However this may be, there is struggle, conflict in every human breast and especially difficult and undecided struggles in the case of the psychoneurotic. Literally, secretly or otherwise he is a house divided against himself, de-energized by fear, disgust, revolt and conflict. It is in these conflicts and their results that the major part of neurasthenia, psychasthenia and hysteria arises, in disgust, dissatisfaction, impotent revolt, and the splitting of the personality that comes when one part of us cannot live harmoniously with other parts.

The task of the physician in these cases is first of all to diagnose the situation, to make sure that he is not dealing with organic disease masked by a psychoneurosis. Thus it must be emphasized as fundamental that in no case should the diagnosis be made until organic situations are excluded.

Second, the physician must then discover the physical factors out of which the condition has, in part, its origin, in bad habits of eating or sleeping, in bad habits of work and play, in poorly conducted organic habits, such as the care of the bowels. He must take whatever steps seem necessary to cure loss of appetite, disturbed sleep, and must prescribe medicines, fresh air, massage and exercise according to the physical situation.

Third, he must do far more than these things. He must probe into the life of the patient and discover the mental causes, the dissatisfactions, the revolts, the disgusts, the forbidden desires, and the dissociations and conflicts that are back of the symptoms. He must harmonize the personality of the patient, must reconcile the one phase to another, and bring about a philosophy of life, either of renunciation or achievement, that will meet the situation. He must teach control of emotions and inculcate new purposes and ambitions, or restore the old ones if these have disappeared. His is a task formerly relegated to priest and pastor, to teacher and philospher, but he must be all of these things when he deals with the psychoneuroses, and from his capacity for understanding human nature, and from his ability to probe successfully into the dark, fiercely guarded corners of the human mind, will come the ability to deal with these conditions.

MENTAL HYGIENE AND DELINQUENCY.

By William Healy, M.D., Judge Baker Foundation.

AT present mental hygienists are endeavoring to get before legislators, people in charge of institutions, judges, probation officers and others who handle delinquents an understanding that an important proportion of delinquency is directly related to abnormal functioning of the mind. But it was not many years ago that the reverse was true; we can read case histories of ten years ago and find reformatory heads insisting to psychiatrists that certain individuals were insane, although as the result of some professional examination they had been declared sound mentally. We could give many instances of this, showing a point of view that differs widely from that taken by modern psychiatry.

A very striking though short paper appeared in the "British Medical Journal" in 1906, written by a certain Justice Rhodes, who plumped the question at the medical profession concerning whether the crime situation in England was not one for prime consideration by that part of the medical profession which had to do with mental diseases rather than one to be decided merely through legal methods. He very pertinently asked what could be the meaning of the fact, for instance, that of 186,000 convictions in 1906, upwards of 10,000 of those convicted had been sentenced more than twenty times before. In all common sense was this more likely to be a matter that could be remedied by continuation of these same legal methods, or was it a matter for the deeper understandings that might come through medico-psychological studies of these individuals?

And concerning recidivism itself, the repetition of offence, one may recognize at once that this is one of the cardinal points of the problem of delinquency. The individual who, taken in hand by the law, does not profit by his experience, even by punishment meted out to him, what can be his mental make-up? The figures of recidivism for this country cannot be given, because as yet we have developed no sort of general or Nation-wide study, not even statistical, of our most expensive problem of delinquency and crime. But if one looks up the facts of any of our metropolitan institutions for criminals, one finds that they readily approach the figures found in the "Blue Book of Crime and Statistics" in Great Britain, or the carefully worked-up statistics that are available from other countries. The implications of recidivism, or the failure of the law to successfully cope with a repeated offender, are of vast significance for us in America.

Twenty or thirty years ago almost the only explanation offered for the career of the delinquent or criminal was comprised in the term "degeneracy." The criminal man was the degenerate man; and under the influence of the positivist school, volume after volume was produced descriptively setting forth the characteristics of the delinquent man, woman and child, as if one were dealing with a certain species or subspecies of human beings. But in the really remarkable developments of the last two decades all this has been changed. Much more has been learned of the nature of mental disease, and vastly more, particularly through psychological studies, of the nature of mental defect. And these two principal divisions of mental abnormality, mental disease and mental defect, are being studied every day more and more in their relation to delinquency and crime.

Now there is no need whatever for exaggerating the extent of the correlation between mental abnormality and delinquency. It must be confessed at once that enthusiasts have indulged in rash and ridiculous statements in connection with their earliest studies, particularly with the first introduction of the use of mental tests. And there have been people, including lawyers, who have been willing to state that "crime is a disease" and *ergo* the criminal is a diseased man. But all such sweeping generalizations are worth little.

Judging by the most careful and consistently undertaken studies, the fact regarding mental defect and its relation to delinquency and crime seems to be that among young delinquents there are very many more times the number of mental defectives than is to be found among the general population. The definite percentage varies for different places, of course, and naturally is greater in institutions, when, under probation, the brighter ones are selected as offering the most promise of doing better outside of institutional walls. But under any circumstances, taking cases just as they come in any one of the large juvenile courts, it will be found that at least 10 per cent of the delinquents are mentally defective. We have made very careful studies of several thousand youthful offenders in Chicago and Boston, and our conservative estimate is that at least 25 per cent of these must be regarded as abnormal mentally. Of this 25 per cent, by far the largest number are to be classified as mental defectives.[1] It is unnecessary to more than mention the classic studies of family groups in this country where mental abnormality and delinquency were closely related — the Jukes family, with the recent re-study of this family, the story of the tribe of Ishmael — an Indiana family, and the Kallikaks as studied by Goddard.

The size and importance of the problem is clearly apparent from all this.

The percentage of delinquents or criminals who are suffering from definite psychoses varies widely. Figures as published are unfortunately particularly dependent upon the inclination of the observer towards some given theory, but in situations where judgments are conservative we still see that there is a very considerable relationship between actual mental disease and the commission of an antisocial offence. Statistics might be quoted that range from the 2 to 5 per cent of mental disease, which we ourselves have found among young offenders, to the large percentages of even some special mental disease which some observers claim to have found in particular court or institutional groups of older criminals.

A much wider viewpoint has recently been taken — and very correctly taken, I believe — by the exponents of the modern ideas of mental hygiene. It is not only the frank psychoses, the "real cases" of mental disease, and the plain cases of mental defect that are important for the students of mental health, but also many other matters that are to be properly classified as unhealthy functioning of the mental life, and matters that pertain to peculiarities of the structural make-up of the mental powers in a given individual, even though there be no feeble-mindedness.

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[1] Youthful Offenders: a Comparative Study of Two Groups, Each of 1,000 Young Recidivists. By William Healy and Augusta F. Bronner. American Journal of Sociology, July, 1916.

By studies in this field we come across the facts of, as well as the causes for, intense dissatisfactions, grudge formations, impulsions and even obsessions, mental conflicts, jealousies, emotional outbreaks, urgent desires, and other affairs of the mental life as originating from within or from without, any of which directly cause or directly underlie tendencies toward delinquency. Surely these are matters of the highest importance for therapeutic endeavor under the heading of mental hygiene. They are matters of the greatest social as well as personal concern. They require study which is only competently undertaken by persons with a wide range of knowledge of what is available in psychology, normal and abnormal, and of what bears on the given situation in medicine.

We have many instances of minor abnormal mental manifestations such as occur during the course of disease, as in chorea, or during a period of life, as in adolescence. School dissatisfactions leading to delinquency — "the kindergarten of crime" — are based upon special disabilities for learning and many other factors in the whole school situation. We have the production of unfortunate mental states as the result of reactions to irritating conditions in home or school life or in employment. And in connection with recreations, or even with reading, we sometimes find the development of a most unhealthy type of ideation. In many ways undesirable mental habits are formed as the result of experiences or inner tendencies. Some of the very deepest emotional upsets are to be observed in normal or even unusually intelligent individuals as the result of untoward happenings experienced at particularly susceptible periods of their lives. Any and all of these, we know from the study of many cases, are conditioning elements at the foundation of careers of delinquency and crime.

Observation also shows the immensely fruitful field that there is in all this for the therapeutic approach that the term mental hygiene implies. It is a work for trained specialists with open minds, who know not only the phenomena of mental disease as such, but who are also students of personality, characteristics and trends, of psychological capacities and incapacities that are quite beyond the implications of "an intelligence quotient," who are students of all that goes to make the individual (always through the mental life itself) exhibit unfortunate antisocial tendencies.

There are adjustments that can be made with the greatest hope of success in ways that are not at all contemplated by the alienist as implied in his dictum "insane or not insane," "feeble-minded or not feeble-minded" (which amounts to institutional care or not institutional care), or by the work of the modern psychiatrist, though he deals more carefully than ever with definite psychoses. There may be much more to it for professional work as our science develops. We hope for much more, whether it be by glandular therapy, or by study of toxins affecting brain cells, or through other investigations from a physiological or psychological standpoint. But even as it stands now, the direct, proper and main avenue of approach to the problems of delinquency and crime is through the field which has come to be designated mental hygiene.

Aspects of Mental Hygiene related to Alcoholism and Drug Addiction.

Any one who has even half studied *human inebriety* must have reached the conclusion that many alcoholics are defective or insane. And one may hold this opinion without being in the least an extremist. Neff well writes: "It has quite often been said that all inebriates are more or less insane or mentally defective but it is our opinion that when all inebriates of all social grades are classed together, it will generally be found that the majority are neither defective nor insane." This statement is merely preliminary to the recognition of a very practical fact for treatment, namely, that a considerable proportion of drunkards are by virtue of mental abnormality not responsive to treatment.

Taking cases of habitual and periodic drinkers who have been repeatedly arrested, Anderson found in his court work that 56 out of 100 had a decidedly inferior level of mentality. He considered 37 of them clearly feeble-minded, 7 were insane, 7 were epileptic, and 32 of them showed evidences of an innate psychopathic constitution. This is probably a fair sampling of the chronic offenders in a metropolitan court where many arrests are made for drunkenness.

No other statement is needed to show the relationship of mental health problems to the social scourge of alcoholism. That another feature is added in very many of these cases through alcoholic mental degeneration, the result of definitive poisoning of brain cells, goes without saying.

Drug addiction is an issue before the country at present as never before. In connection with the problem of drug addiction, probably the student of mental hygiene is more concerned with the results of the drug itself upon the mental powers than with the original constitutional weakness of those who become drug users, in this respect being a variation from the problem of alcoholism. The fact that some observers working in courts have found evidences of a considerable proportion of mental abnormality, either defect or psychotic tendencies, is not so significant as in cases of inebriety, because nearly all of these drug users as they appear in court are delinquent individuals involved in other antisocial behavior than the use of drugs. They are either innately so abnormal mentally or have become so deteriorated that they place themselves in situations where they readily come under the ban of the law. Comparatively few of their arrests are for breaking the drug law. As a matter of fact a vast number of drug habitués never come in contact with the law because, of course, their use of the drug does not entail such socially offensive behavior as does drunkenness.

The problems of mental hygiene, however, are involved in practically every case of habitual drug using even if there is no drug psychosis or any innately defective mental constitution. This main fact constitutes one of the great points of attack in treatment. Mental dissatisfaction itself, for example, whether through ill health or other stress, is one of the prime reasons for entering into and continuing the drug habit. Any one who would merely attempt to get an understanding of why human beings respond to such artificial stimuli or satisfaction must take into account the facts of mental life.

As in the case of the relationship of mental hygiene to delinquency, we see here again the fact that mental health means much more than freedom from a definite psychosis, just the same as bodily health means much more than freedom from specific and well-known diseases. The student of health must take into account the functioning of the organism upon levels of efficiency, adaptation and satisfaction to the individual, — facts that are not usually dwelled upon in textbooks of pathology either of mind or body.

MENTAL HYGIENE AND PROSTITUTION.

The studies and reports, some of them very extensive, of the earlier vice commissions which, ten or twelve years ago, first undertook the difficult task of public enlightenment concerning *prostitution* had very little to say concerning the mental personality of publicly immoral women. The swing from the nonrecognition of the problems of mentality involved to the most exaggerated statements concerning the amount of feeble-minded and psychopathic conditions to be found among these women was the natural swing of the pendulum.

The real situation seems to be about as follows: Of course no one who knows the facts would presume to argue that such immorality entered into by women as a gainful occupation is highly correlated with mental incapacities of any kind. The only studies of mentality that have been made are of those women who have been so foolish that they did not avoid the notice of the police or other preventive agencies, or more rarely of some groups of those who have been openly and notoriously plying their trade and have been willing to be studied. Even the superficial investigations of vice commissions show that a vast amount of prostitution is engaged in by women who are sharp enough to keep out of public notice and to avoid showing any evidences of law breaking. There is no reason to believe that these women differ in mentality from the average run of the population.

But through the study of women who are easily accessible, because of open immorality or being under arrest, we get a picture that demonstrates clearly a very considerable correlation between mental abnormality and such "caught offenders." In the opinion of the Massachusetts Vice Commission, about half of the women seen were to be considered as mentally defective. It is of local interest that Anderson, taking 100 women who were seen in his laboratory in the Boston Municipal Court, found that about half of them represented pathological mental types, among which feeble-mindedness ranked highest. But here again we have the fact that many of them evidently came to attention as violators of the law because they were alcoholics or drug habitués. Indeed, some of them had already begun to show deterioration from these poisons.

The point of the whole matter is that no individual or general social therapeutic or preventive treatment of prostitution can be considered, even in terms of common sense, without reckoning on the highly practical human factors of mental conditions as they most necessarily affect prognosis.

The problems of *illegitimacy* are to some extent the same as those of prostitution. Here again it is clear that the brighter individuals take care of themselves and of their offspring in ways to avoid public notice. But a study of cases of illegitimacy as they come to public agencies reveals a very considerable percentage of mental abnormality among the mothers. Probably the best source of information for readers of this bulletin is Kammerer's "The Unmarried Mother."

MENTAL HYGIENE AS RELATED TO VAGRANCY AND DEPENDENCY.

It is easy to understand that the *vagrant* or *tramp* very frequently indeed is a psychopath. The fact of his lack of success or of finding satisfaction under ordinary conditions, when, as is usually the case, he has a fairly good physique, is evidence of something abnormal in his personality. Of course there are economic reasons, fairly clear at different periods, which must be taken into account in estimation of the causes of wandering or vagrancy. But the study of the ordinary or habitual tramp in this country as well as in Europe, where an important literature has developed concerning the subject, reveals a considerable list of mental troubles in the background of the tendency toward a vagrant life.

One mental disease in particular has received considerable attention as relates to vagabondage, and from observation of individual cases we have no doubt that this disease (dementia præcox) plays an unusually large part in the situation.

In the fellowship of tramps — and it sometimes exists to the extent that there are tramp colonies — degenerate practices are very frequently carried on which may well develop a tendency toward deterioration, toward living at a lower level than the innate mental constitution of these men would warrant.

Apropos of social prevention of the ills that such irregular living implies, it is most interesting to note that in communities where feeble-minded youths and cases of mild psychoses have been taken care of early in greater proportion, there is very much less evidence of vagrancy or tramp life. The problem can be solved, — it is solved to a greater extent in Massachusetts, through better care of the mentally abnormal, than in most States in this country.

Much can be done by early attention to the real needs of the feeble-minded, the mentally diseased, the epileptic who has mental disturbances, and the psychopathic inferiors. We can find evidence of it in the better control in certain localities of tramp life, prostitution and delinquency. Constructive measures undertaken are related not only to the welfare of these individuals themselves, but also to their progeny, for, of course, *dependency* results from the nonsupport and the desertions that are connoted by alcoholism, prostitution and vagrancy. And much more is involved than the economic situation resulting in State care and placing out of children; we have only too frequently the matters of actual disease in these children, physical and mental, which are most costly to our civilization.

There is thus every argument for assailing in the most direct way those burdens of our social life which come under the head of delinquency, alcoholism, drug addiction, prostitution, illegitimacy, vagrancy and dependency through an approach to them which can only be gained by knowing their intimate relationship to the facts of mental hygiene, — through understanding what each of these means in terms of departure from mental health.

THE NERVOUS CHILD AND BEHAVIOR PROBLEMS.

By D. A. Thom, M.D., Chief of Out-Patient Department, Boston Psychopathic Hospital.

If we are to understand human behavior, whether it be manifested by infant or adult, whether it be found in the nursery, the school, the shop or the prison, it must be interpreted in terms of the individual's mental and physical equipment, the environment in which he has been reared, his past experiences, and his general reaction to the problems of his every-day life.

The success or failure of the individual to adapt himself in a manner not only satisfactory to himself but to those with whom he is associated may depend upon numerous and varied factors, all very intricate and involved, frequently closely interwoven one with another. Good bodily health, dependent upon perhaps some simple problem of nutrition; a nervous system capable of functioning in a normal manner; a proper balance between the glands of internal secretion (a complex bit of biological chemistry of which we are all too ignorant) and even less well-defined inherent defects which prevent the normal development of certain instinctive reactions, all play an important part.

It is not, however, any of the foregoing factors which act as the stumbling block to the great majority of individuals who may be said to be "failing to make the grade" and are utilizing as a crutch some abnormal method to help them on with the tasks at hand. The crutch may be drugs, alcohol, convulsions, cruelty, tempers, delinquency of all types, and, in the more serious cases, delusions and hallucinations.

That many of these conditions can be traced to a failure on the part of the individual to adapt himself to his environment, even in the years of childhood, is no longer doubted, and, as evidence accumulates, we are beginning to feel that more and more frequently the individual is a victim of his environment rather than his heredity.

It is not unreasonable to presume that if there is a group of cases belonging to the economic and social failures, which have their origin in the mental conflicts of childhood, and if these conflicts can be discovered and corrected at five years instead of thirty, much will have been accomplished for the particular individual and those with whom he is to come in contact.

Whatever view one may hold regarding the fundamentals of character and personality, we are, I think, all agreed that there are certain instincts, "innate tendencies," "natural inclinations or propensities," call them what you will, which are lying dormant in the individual from birth ready to be called into service usually at such a time and with the desired force to meet the best needs of the individual. The stimuli which actuate these forces may come either from within the individual or from the environment, and it is for the purpose of attempting to guide, to inhibit or to promote these instinctive forces that may be underdeveloped, overdeveloped or imperfectly developed that we study the mental life of the child, utilizing *behavior* as the medium of interpretation.

There are certain fundamentals necessary to the mental development of every human being that are more in evidence during childhood than at any period of life. Those that strike me as being of particular importance because of their utility are *plasticity, suggestibility, imitativeness* and *love of approbation.*

It has been frequently stated in one way or another that man is extremely complex, that he has the greatest capacity for modification, and that this period of mobility lasts longer than in other animals. This being true, the plasticity of the early years of life should be utilized to its limit in an effort to develop habits which will serve the individual in good stead in future years.

Suggestibility, used in its broadest sense, implies the "acceptance with conviction" but without "adequate grounds for its acceptance." It needs no elaboration to understand how beneficial or detrimental this trait may become, depending entirely upon the source from which the suggestion comes.

Imitativeness, a very broad term even in a psychological sense, is used here to denote that tendency so potent in childhood to mimic the words and acts of those in the immediate surroundings. Manners are dependent upon this trait.

Love of approbation, praise and blame, rewards and punishments are all closely allied. They can be brought into action in our effort to attain right action during that period of a child's life when everything is being interpreted in terms of pleasure and pain. Pleasure may come through material gain or approbation, pain by means of punishment or injury to the ego through criticism. Here one frequently has to appeal to low motives to get proper action. Later on, when judgments become more intellectual and less emotional, one can appeal to the child's intelligence. One may inculcate the ideas that right action is a paying proposition; rewards should come after labor; impulsive acts frequently bring painful results; the higher the motive for a given act, the more pleasure it brings; and, finally, that obedience, self-control and endurance are manly and well worth the struggle.

We are dependent upon these fundamentals (plasticity, suggestibility, imitativeness, love of approbation and many others), and upon the fact that they can be stimulated by environmental conditions, to combat successfully the development of undesirable character traits which are so constantly and persistently trying to weave themselves into the fabric of the individual's personality.

We recognize at a very early age such traits as extreme jealousy, timidity, cruelty, self-consciousness, and feelings of inferiority which absolutely forbid normal healthy contacts with others in their environment, together with suspiciousness and envy which prevent the development of friends and isolate one at an early age from the rest of the herd.

We see daily the results of a personality that has been dominated by one or more of these defects, and we recognize the therapeutic value even in adult life of determining their origin and development. Yet how much more important is the work which will in any way tend to their prevention or correction during the immature years of life.

Not only is it important to study the material with which we are dealing so far as the child is concerned, but it is quite necessary to know by whom and under what conditions this material is being used.

The immediate environment, the home and its occupants and surroundings are what go to make up the mental atmosphere in which the child lives. I can only touch on one important aspect of the problem at this time, and that is the parent. So much of the child's early life is, or should be, spent with the mother, that quite naturally her influence cannot be underestimated, but all too frequently there are circumstances and conditions which prevent this influence being as healthful as we might hope.

There is the mother, worn and wearied by her routine household cares, who tries to supplement the family budget by putting in a few hours scrubbing floors when she should be in bed, and who has little energy, either physical or mental, left for her children's welfare. Contrast her with the work-avoiding, duty-shirking, pleasure-loving mother who feels that her duty is ended at the birth of the child, when she turns over her responsibilities to the nursemaid for so many pieces of silver. Again we find the mother with most excellent intentions whose interest is apt to defeat its very purpose. Usually she is oversolicitous, and caters to every whim and desire of the child. All too frequently she is emotionally unstable, and the child soon finds out there are no definite rules and regulations about discipline. What is condoned to-day is punished to-morrow, and in spite of ability to adjust rapidly, he finds it difficult or impossible to follow a consistent line of conduct. There is no situation more pathetic for both mother and child than that which confronts the mentally defective mother who is doing the best she can with what she has and yet is failing and recognizing her own failures.

So far we have considered only the mother, but we must not forget that at the end of the day the father is introduced in the family circle, and he may spread peace and harmony where chaos was wont to prevail or he may disrupt and render chaotic that which was peaceful. The stern, righteous, rigid father, who dominates the household by fear, is from a mental point of view perhaps the most unhealthful object in the environment. Yet the child is not to be envied who has to deal with the quick-tempered, impulsive parent who deals out a word and blow, the blow coming first. Lucky is the child who does not have its discipline handed out by some emotionally unstable parent, often in an extremely erratic manner.

In order to ascertain just what the home situation is, and what factors, both good and bad, we have to utilize and combat, a trained social worker is employed to make investigations and to see that the doctor's directions are fully understood and are being carried out. When the child is the object of interest, few homes are kept closed to the doctor's assistant. It is important not to make mere interviews out of these visits and to get workers who are not afraid to get down to the social and intellectual level of their hostess just so far as it is possible. Impressions are recorded mentally and put in proper form after the visit. Much can be learned in this way of the mother's attitude toward the child, the problems of the family, their hopes and ambitions, as well as their doubts and fears. The factors which are likely to contaminate the mental atmosphere of the child can frequently be determined by these visits, and rectified by the advice and assistance of the doctor, teacher, minister, social agency, or whatever source to which it seems advisable to turn.

It was with the idea that the foregoing principles might be utilized to advantage that we planned to organize what may be called habit clinics in connection with the Baby Hygiene Association. The purpose of the clinic is to deal with those children who are developing during the pre-school age, that is, between the ages of two and five years, undesirable habits, and to determine insofar as possible the basis of these habits, and to institute measures which will tend toward their correction.

The following are a few examples of the problems presented at the clinic: —

P. F. Age two years, nine months. Beats, kicks, slaps and bites other children. Has violent tempers and night terrors. Wets the bed every night. Also wets clothing during the day.

J. Y. Age five and a half years. Refuses food. Has fainting spells when threatened with punishment. Sucks his thumb.

F. D. Age three and a half years. Intense fear of dogs. Very shy. Terrifying dreams.

I. S. Age five and a half years. Refuses food unless fed by mother. When left alone with her food, hides it, and then tells fanciful tales of what has happened to it.

F. J. Age two years. Intensely jealous of little sister aged four. Resentful and sullen. Makes vicious attacks upon sister, usually biting and scratching.

H. H. and G. H. Age five and six and a half years, respectively. Sisters. H. H. for past three weeks had persistent vomiting one or more times daily; has always been a bed wetter. G. H. walks in her sleep and is also a bed wetter.

X. Y. Age three years. Very shy, always sits back and watches the other children at play, takes no active part.

X. Y. Boy sent into the house for cruelty. Tied cat and killed it, hitting over head, etc.

Other problems are those relating to intelligence status, convulsions, speech defects, mannerisms, lying, stealing, tics, destructiveness, day dreaming, unusual attachments, inability to concentrate, tearfulness, all sorts of vague, ill-defined fears, fabricating, precocious interests, etc.

In dealing with these cases it is not only necessary to study the personality of the child and the parents, to investigate carefully all aspects of the child's home life, including the recreational and amusement facilities, and its reactions in the nursery and kindergarten, but also to solicit the co-operation of the parent, nurse and teacher, instructing them regarding the program outlined for the child's benefit. The future happiness, as well as the social and economic efficiency of many individuals, may be materially aided if some plan as outlined can be organized and perfected.

No claim is made at this time that there is any relation between these undesirable habits in childhood and mental breakdowns in later life, yet it is not difficult to see how closely these infantile reactions resemble the psychoneurotic manifestations in adult life, and that a fundamental lack of inhibitions may be a dominating characteristic in a criminal career.

SOCIAL AND ECONOMIC DISORDERS, THE ROOTS OF WHICH ARE TO BE FOUND IN THE MENTAL DIFFICULTIES OF PECULIAR INDIVIDUALS WHO INFLUENCE LARGE GROUPS.

By A. Warren Stearns, M.D., Assistant Professor of Neurology, Tufts Medical School, and Physician of Nervous and Mental Diseases, Boston Dispensary.

DISEASE of the brain, while manifesting itself in many ways comparable to results of disease of the other organs of the body, has one striking peculiarity, viz., its effect upon the conduct of the individual; and so in our studies of mental disease we are to quite an extent dependent for diagnosis upon inferences drawn from the behavior of the individual. Diseased groups have been formulated oftentimes because of the characteristic effect upon conduct. Indeed, we have gone farther still. Confronted by conduct which we are unable to explain on the basis of known brain disease or by analogy with normal or customary reactions, we have constructed hypothetical diseases, the principal evidences of which are characteristic action by the patient.

Among the determining elements in normal conduct, one of the most important is the tendency to conform to the customs and habits of the particular group to which we belong. This holds true in ordinary matters, like dress or manners, and also in more complex matters, such as, for instance, emotional expression. He who has seen the heated argument without physical demonstration by a man trained in one social class is quite startled at the violent gestures and implications of the members of another class or race in discussing a ball game. So society may be conceived as a spherical mass, the great bulk of which is governed by the same impulses and motives and reacts to similar experiences. As we go from the center of this mass we find at the surface individuals quite different, who no longer react as units of a great social organism, but as individuals guided by their own instincts or other mental activity. To be sure, there is a tendency for these individuals to form themselves into smaller groups, oftentimes quite hostile to the main body. By such analysis we can understand the behavior of certain members of our communities whose conduct varies from the average.

Conspicuous among these eccentric individuals are the *paranoid personalities*. These individuals are peculiarly sensitive. Their ego is dominant and they care more for its promptings than for the commendation of the other members of their group. These individuals frequently head reform movements, but more often they live a thorn in the flesh of their associates, quibbling over the social transgressions of their neighbors, and attempting numerous social measures, the main motive for which is an unconscious and blind struggle against the dictates of the larger herd or group of people. Among these will be found sympathizers with the enemy in time of war, certain conscientious objectors, and those who habitually form themselves into "anti" societies. Carried to the extreme degree, these individuals are called *paranoiacs*, — those who are so far unbalanced as to have delusions of persecution and ideas of grandeur. Mental hygiene does not attempt to remake these individuals, but it asserts that, understood and tolerated, most of them are useful and important members of society.

A word of caution is necessary in considering this group, — that is, our innate tendency to regard any one who disagrees with us of morbid or inferior mind, and it must be remembered that every once in a while one of these individuals is right and the world is wrong.

Another type of personality leading to conduct disorder is that having unstable or untrained emotion. These individuals react excessively to the ordinary emotional irritants of life, and often violently to minor stimuli. It is their uncontrolled excitement which often touches the match to the mob, and their lack of emotional control is one of the important elements in homicide and suicide. To be sure, this emotional instability is almost normal in childhood, and when we deal with it, carried forward to adult life, we can hardly be sure whether the condition is due to an innate quality or to the lack of opportunity for acquiring normal poise.

Another type frequently mentioned is the *inadequate personality*. With these individuals we can never be sure whether they can, but do not want to, or whether they want to, but cannot. The net result, however, is clear, viz., they must be carried along by their stronger, more virile associates.

We could go on almost indefinitely enumerating oddities and eccentricities of these personality disorders were there time, but space will not permit, and the three most pronounced types have merely been mentioned in order that the reader may have a general idea of the trend of medical thought in this direction.

But one other class will be mentioned. A number of years ago, in England, certain individuals appeared repeatedly in the courts. They were studied in the light of the most scientific knowledge of the time, without positive findings. Their conduct was explained adequately by a theory assuming lack of moral sense, and they were called the *moral imbeciles*. This concept has been carried along through different stages of psychiatry, and such terms as *character deviate, constitutional inferiority*, etc., have been used to designate them. Their problem is still unsolved, but advances are being made in understanding them through theories of personalities.

Generally speaking, it is wrong to think of these disorders of personality as insanity and they are better understood if they are conceived as types of mankind.

HOW MENTAL HYGIENE FUNCTIONS.

By George K. Pratt, M.D., Medical Director, Massachusetts Society for Mental Hygiene.

PUBLIC health workers have long known that the most valuable scientific knowledge is of little avail in combating disease when hidden in laboratory seclusion. To become effective, such knowledge must be collected from scattered sources by some central agency and properly distributed and applied.

One of the chief tasks of mental hygiene organizations is found in this function. It collects and co-ordinates psychiatric information from widely separated sources, and, after filtering out the less valuable, disseminates the useful into proper channels for mass application.

Another ideation carries out this analogy still further. It conceives psychiatry to be the discoverer and mental hygiene the promoter which applies practical principles to community conditions. This concept is closely followed in Massachusetts and appears to be working out successfully.

The Massachusetts Society for Mental Hygiene was incorporated in 1914 as a State branch of the parent organization, the National Committee for Mental Hygiene. Its objects at that time were stated to be: "To work for the conservation of mental health; to help in raising the standards of care for those suffering from or in danger of developing mental disorders; to promote the study of mental disease in its various forms and relations; and to disseminate knowledge concerning its causes, treatment and *prevention*."

In the main these objectives have been faithfully adhered to with but few changes necessitated by local conditions. Gradually, however, the emphasis has been placed on the *preventive* aspects, and for this reason the mental hygiene program in Massachusetts is now dedicated largely to a campaign of public education in ways and means of prevention. Funds and personnel have always been, and probably always will be, insufficient to meet the strain of engaging in widespread clinical activities. Indeed, one is perhaps justified in seriously doubting whether large-scale clinical activities should be made a part of the program of any private health organization. To be sure, it may be found expedient for a private group occasionally to establish a preventive or treatment center, to act as a demonstrating agent. The Tuberculosis League is a case in point. But, by and large, the old theory that the function of a private organization is to discover, to experiment and to demonstrate, with the governmental department accepting only the tried and proved and applying it to the community, still holds true.

And so it is with mental hygiene. This public health organization shares with psychiatry the knowledge that much mental sickness is preventable. It shares also in the knowledge of the postulates which psychiatry have erected as prerequisites for prevention, viz., early detection and early treatment. It shares with the State Department of Mental Diseases a belief in the excellence of institutional care in Massachusetts afforded those already mentally sick; and, finally, it shares with many a conviction that the field of prevention is vast enough to absorb the joint energies of both State and private organizations and that there is plenty of work to be done by each.

If, as we are convinced, prevention of mental disorder is largely dependent on widespread familiarity of what constitutes early symptoms, and on knowledge of how to secure early treatment, then the task of the Mental Hygiene Society is one of education and publicity. One may not unreasonably ask what is the *modus operandi* of this task? How is it planned to bring these hoped-for results to fruition?

First by a State-wide campaign of education concerning knowledge of mental health and its preservation. This is accomplished in several ways. The mental hygiene organization maintains a Lecture Bureau Service of some thirty-five lecturers, who are available for talks on their specialized branch of mental health anywhere in the

State. The following names and topics selected at random give an idea of the caliber of these speakers and the scope of their topics: —

"Mental Hygiene and the School." By William H. Burnham, Ph.D., Professor of Pedagogy and School Hygiene, Clark University, Worcester.

"The Intelligence and Training of Elementary School Children." By Walter F. Dearborn, M.D., Ph.D., Professor of Education, Harvard University.

"Feeble-mindedness. Influence and Obligations of Society towards the Feeble-minded." By Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

"Modern Hospital Methods in the Care of the Insane and what may be expected from them." By George M. Kline, M.D., Commissioner, Massachusetts Department of Mental Diseases, Boston.

"The Solution of Behavior Problems." By Frederic H. Knight, Ph.D., Superintendent, New England Home for Little Wanderers.

"Syphilis and Mental Disease." "Heredity of Mental and Nervous Diseases." By Abraham Myerson, M.D., Assistant Professor of Neurology, Tufts Medical School, and Consulting Neurologist of the Psychopathic Hospital, Boston.

"Nervousness: Its Cause and Prevention." By Austen Fox Riggs, M.D., Stockbridge, Mass.

Then there is a system for organizing branch or district chapters throughout the State, each of which acts as a nucleus for still finer subdivisions. These district branches hold frequent meetings or small conferences, and are exceedingly useful in arousing their communities to a feeling of responsibility and concern over the problems troubling that particular locality.

A monthly bulletin is published and sent to members of the society and others interested. This bulletin contains pertinent bits of information concerning the work, news of branch activities, recent psychiatric advance and so forth.

A series of more than forty pamphlets is published on various phases of the mental hygiene program, specimen titles include: —

"Preventable Forms of Mental Disease and how to prevent them." By E. Stanley Abbot, M.D.

"The Burden of Feeble-mindedness." By Walter E. Fernald, M.D.

"The Relation of Syphilis to Mental Disease." By Samuel T. Orton, M.D.

"Epilepsy." By Everett Flood, M.D.

"Mental Pitfalls of Adolescence." By Henry R. Stedman, M.D.

"A Health Examination at School Entrance." By William H. Burnham, Ph.D.

"The Defective Delinquent." Papers by V. V. Anderson, M.D., Dr. William Healy, Frederick P. Cabot, Herbert C. Parsons, Col. Cyrus B. Adams, Mrs. Jessie D. Hodder, Dr. George M. Kline and B. L. Young.

"Mental Hygiene and Education." By Arnold Gesell, M.D., Walter F. Dearborn, M.D., C. Macfie Campbell, M.D., H. Douglas Singer, M.D., and W. A. Neilson, LL.D.

There are many others. These pamphlets are available for distribution on request.

The society maintains and strives to keep up to date, a reference library of over five thousand articles, conveniently cross-indexed by subject and author. This is open to the public and has proved a valuable source of information to physicians, nurses, social workers and others.

The society undertakes to arrange instruction courses for interested groups of workers or others in the fundamentals or primary psychiatry. Several such courses have been given the past winter, the most successful, perhaps, being conducted under the auspices of the Boston Health League in the East Boston High School. The course as there given follows: —

1. Introduction:
    General explanation of the course.
    Types of common mental reactions.
    Mental mechanisms and attitudes.
    Definitions of terms frequently used: "psychiatry," "mental hygiene," "mental disorder," "nervousness," etc.
2. Brief discussion of mental disorders:
    Variations in types.
    Common symptoms.
    Prognosis.
3. What are nervousness and "nervous breakdowns"?
    To what extent does environment affect their cause and severity? Symptoms.
4. Nervous and mental disorders in children:
    Feeble-mindedness.
    Delinquency.
5. Nervous and mental disorders in children — continued.
    The nervous child.
    Types of conduct or behavior disorders which indicate need of mental examination.
    Significance of character changes.
    Social interpretation of these problems.

6. Practical suggestions for routine handling of psychiatric cases in the community.
7. The social worker, nurse and teacher. Their relationship to mental hygiene. What each can do. Minimum requirements of psychiatric knowledge. How much stress shall be placed on differential diagnosis? Conclusion.

A plan is in preparation to have written by Massachusetts experts a series of simply worded, very brief articles on causes and means of prevention of mental disorder, and an effort made to have these syndicated to a number of newspapers throughout the State.

Realizing that public education in mental health preservation cannot rise higher than its source, mental hygiene is striving to insert into the curricula of medical schools, nurses' training schools, normal schools and other educational institutions, courses in mental health training, a feature sadly lacking at present.

By all these means and many others it is hoped that persistent effort will ultimately avail in increasing the mental health of the State as a whole. The task is staggering to visualize, but so is the burden of human misery and cost imposed each year by "man's last specter" (mental disease). And we sincerely believe with Dr. Haven Emerson that we can now see a time, perhaps not so very far away after all, "when the strange child, the strained mother, the confused and hounded workman will appeal to hospitals for relief from the twisted personality, the beaten brain, the incapable self-control, as they now run to them for diabetes, appendicitis or typhoid fever."

And with Dr. Emerson we are convinced that —

> The opportunity is ours.
> The knowledge is ready.
> The way is clear.
> The facts call loudly for action.

THE COMMONHEALTH.

Bimonthly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

Health Examination of Working Children. — The Department of Labor and Industries is publishing a form for use in the examination of children applying for employment certificates. This form covers the main points given in the one recommended by the Children's Bureau, but is much less detailed. The Department recommends that school physicians assigned to examining children for health certificates use this schedule. Copies will be furnished on application.

At the present time there is no standard form for this purpose in use in the State. A few physicians have their own records; but in the majority of instances no form is used, so no permanent record is kept. It is important that the results of the examination should be recorded and kept on file in the office from which the employment certificate is issued. By this means it is possible, when the child returns for another certificate, to check the examination with the result of the previous one, to ascertain whether defects noted at the former time have been corrected, and to secure some information as to the effect of the work on the child's health.

A standard form for all issuing offices is desirable, in order that there may be greater uniformity in practice throughout the State, and in order to insure that the examination made covers all the essential requirements. It is hoped that the use of the proposed schedule will assist in bringing about these results and will secure a more thorough and careful examination of children applying for employment certificates than is the case at the present time.

The Department is also preparing a handbook explaining the procedure in issuing employment and health certificates and badges for street trades. This will contain a section on the health certification of working children, with reproduction of the new forms. — Ethel M. Johnson.

Conferences on School Nursing. — For the past two years it has been the hope of the Division of Hygiene of this Department to arrange a series of conferences with school nurses, school physicians and school superintendents, for the purpose of discussing the problems of school nursing. This hope is now in process of being fulfilled.

Under our Massachusetts system each municipality conducts its school hygiene work under its own rules and regulations, subject only to certain statutory provisions regarding records. Such a system as this is, in the main, excellent, but in order that divergence in policy may not be too great, some method must be available whereby the successful methods of one community must be accessible to others, and whereby the problems of all may be freely discussed. This can most readily be brought about by regional conferences.

Such a conference under the joint auspices of the State Departments of Education and Public Health was held at Hyannis at the State Normal School. The morning session was presided over by the supervisor of elementary education in the State Department of Education; in the afternoon the presiding officer was the nursing assistant to the State district health officer for the local health district. Superintendents and nurses were present from as distant a point as Martha's Vineyard. The program included a discussion of school hygiene in general; what should be expected of school physician and nurse; what should be expected of the teacher; the place of physical education in the school health program was touched upon; also the problems of the rural school nurse. The session ended with a question box.

A feature of this conference, which attracted favorable comment, was the presentation of the play "The Lion and the Nurse."

New Health Play. — Most of the health plays we have seen have been plays written for the instruction of children and performed largely by children. The Massachusetts Department of Public Health has recently tried another plan, namely, a health play for adults, with both adult and child performers, and dealing with the subject of the medical supervision of the school child. This play is entitled "The Lion and the Nurse." It is being given at the school hygiene conferences now being carried on by the State Department of Education and State Department of Public Health.

The story of the play, in brief, is as follows:

The members of the health committee of the John Wright School are very anxious to secure the services of an efficient school nurse. Hiram Weatherbee, chairman of the school board, and the most influential man in town, refuses to consider the plan, contending that the children of the town have always done well enough without what he terms a fad. The health committee, however, accepts the services of a nurse for one month's demonstration. By proving to Hiram that his own son, Harold, badly needs the help of a school nurse, the old lion is won over and becomes the biggest "booster" for the plan of permanently employing Miss Kate Faxon as nurse for the John Wright School.

THE TWENTY-FOUR HOUR SCHEDULE.

By J. Harding Armstrong, Principal, Lawrence School, Brookline.

DR. RICHARD M. SMITH, a specialist in the care of children, has said, "The matter of time distribution and the question of nutrition are the two most important factors in the health of school children." During the past few years there has been a great deal of publicity regarding the latter of these problems, and because of this campaign waged from the platform, by the press and through the schools, all thoughtful parents have had the matter brought to their attention. Consequently, we find everywhere that parents are giving the question considerable thought and are planning a more satisfactory diet for their families.

The question of a proper distribution of time has, however, apparently received little attention. This is a problem which can properly be solved only by the co-operation of home and school, as both have control of the child for definite periods of time, and the use of time in one vitally affects the other. Dr. Smith has made an interesting study of the subject in a private school with which he is connected, and his report of his work there led to a similar experiment being made in the Lawrence School, a Brookline public school. Our schools are conducted on the one-session plan, opening at 8.30 and closing at 1.30 for all except the primary grades. One-half hour is allowed for lunch, which is brought by the children, and milk is sold to those who desire it. In the grades above the fourth we have regular assignments of home work, increasing from fifteen minutes to one and one-half hours, according to the grade.

For some two years before this experiment we had been doing very definite health work in our school, — weighing the pupils, stressing the need of proper diet, and the importance of plenty of rest and sleep. This general health campaign had not enabled us to solve satisfactorily two of our most serious problems, namely, the securing of the requisite amount of sleep and the proper preparation of home work. Consequently, the twenty-four hour schedule was developed.

Two bases for dividing the time were used. The first, and more apparent, was the division of time between home and school. Under the present public school plan a relatively small part of the twenty-four hours is spent in the school, but if one stops to consider he will realize how vitally the use made of the out-of-school hours influences the results which can be obtained with the pupil in school. This is perhaps even more important in public than in private schools, because the pupils come from a wide variety of homes where conditions are much more unlike than would be in the case of a private school population.

The second basis was the division of time between the periods of mental and physical activity and those periods when the child is occupied with the things which require a comparatively small amount of energy. In a well-regulated school, the program, if properly planned, should arrange this matter in a satisfactory manner so far as the school hours are concerned. In the past the school has not felt it within its province to suggest, much less to plan, the outside activities of the pupils except to a very limited extent, but if it is to do its utmost to develop a well-rounded child, it cannot longer consider this a problem entirely without its province. If need be, the school must be prepared to take the initiative in any plan which will better the condition of the pupils.

With these thoughts in mind a suggested division of time was drawn up, and the parents of the pupils in the eighth grade were invited to a conference regarding the matter. They responded in a gratifying manner, taking an active and helpful part in the discussion. They felt that such a plan would aid them in the regulation of home life and would emphasize to the boys and girls the need of more definite and careful planning of their time. As a result of the conference the following table was drawn up for Grade 8, together with the accompanying daily schedule: —

Suggested Division of Time for Pupils of Grade 8, Lawrence School.

		Hours.		
		School.	Home.	Total.
Activity	Study and recitation . . .	3	1½	4½
	Recreative subjects[1] . . .	1	–	1
	Exercise and change of classes .	1	3[2]	4
Inactivity	Relaxation	–	2[3] 2½[4]	4½
	Sleep	–	10	10
	Total hours	5	19	24

[1] Recreative subjects: music, drawing, manual training and domestic science.

[2] Out of doors if possible.

[3] Meals.

[4] Change.

Suggested Daily Schedule, Grade 8.

7.00 A.M.	Rising hour.
7.00–8.25	Dress, breakfast and school.
8.25–1.30	School session.
1.30–2.30	Home, lunch and rest.
2.30–5.00	Play (out of doors if possible).
5.00–5.30	Change.
5.30–6.15 [1]	Study, home lessons.
6.15–7.30	Dinner and home duties.
7.30–8.15 [1]	Study, home lessons.
8.15–9.00	Relaxation.
9.00 P.M. [1]	Bed.

Change: time taken in changing from one activity to the next.
Relaxation: time spent as child wishes, reading, playing games, etc.

These were sent home to the parents of each child with the following letter: —

> The enclosed table and schedule covering the activities of the five school days are the results of the conference of parents and teachers of our eighth grade which was held last week. I am sending them to you with the suggestion that you examine them carefully and then use them as an aid in the regulation of the daily life of your boy or girl.
>
> It must be borne in mind that these are schedules which will need some modifications to fit individual cases, but they should serve as important guides in the formation of right habits of living. I also feel certain that if they are applied, they will result in better preparation of home work and in a more satisfactory physical condition of the children.
>
> If all children of this class are playing and studying at the same time, it will be much easier for the parents to regulate the child's activities, and so this plan should prove of real value to the home as well as to the school.

In studying the table it will be noted that one hour of school time is designated "recreative subjects." This was done at the suggestion of the parents, who brought out in the discussion that four hours of study and recitation which required concentrated attention was too much to expect of a child. When we explained that this in reality included work which was of quite a different type, it was urged that such subjects be placed in a separate group, otherwise the table would mislead parents. Consequently, the term "recreative subjects" was used to designate such subjects as music, drawing, manual training and domestic science. Under the division of time designated "home," it was not possible to divide the time with as much accuracy as the time in school, and the allotments made here are merely approximations which are suggested to both parents and children. The term "change" is used to indicate the rather frequent periods when the child passes from one activity to another.

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[1] These hours are of special importance.

Upon examination it is at once obvious that no definite time is set aside for music or any other study which is outside the school curriculum, but this element is such a variable factor that it did not seem best to include it in the table. Provision for such activities must be made by the parents in such a way as to interfere as little as possible with the hours of sleep and home study.

This plan was presented to the pupils in as attractive a manner as possible so that they would look upon it as something which would aid them in doing better school work and help them to keep in proper physical condition. They keep a record of their hours of studying and of retiring, and each week these records signed by the parents are brought to the teacher. Our experience has shown that a large majority of these reports are regularly and honestly kept by the pupils, and that the parents are almost invariably ready to co-operate. These records are examined by the teacher and she is thus able to make suggestions to the individual pupil as the need arises. This scheme which is now operating in our seventh and eighth grades has been of very definite help to us and our pupils, and has been especially valuable in creating a greater sense of personal responsibility on the part of the boys and girls.

A modified form of this plan is also being used in the sixth grade, with special emphasis upon the hours of rest and sleep and general health habits. The teacher has made a series of drawings on the board illustrating the activities of the day and the approximate number of hours which should be given to each, thus visualizing in an attractive manner the things which are sometimes distasteful to children. The children have become very enthusiastic about their schedule, and under the guidance of their teacher have worked out a score card as indicated below. She has found these health records invaluable as a basis for talks with individual pupils or parents who are anxious to find causes for failures in the schoolroom.

My Health Habits. Grade 6, Lawrence School.

	Credits.	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Wash hands before eating	10							
Do not drink coffee or tea	10							
Spend one hour outdoors	10							
Sleep with windows open	5							
In bed at 8 o'clock	15							
Full bath once a week	5							
Drink one quart of milk daily	20							
Drink five glasses of water	10							
Do home work before supper	10							
Smile much	5							
	100							

The success of such a plan as has been outlined depends largely upon two factors, — the enthusiasm of the teacher and the co-operation of the parents. If a teacher has fully come to realize that the health of her pupils is the foundation upon which all her work must rest, she will find this scheme very suggestive and helpful. To her it will be another avenue of approach to that part of the child's life concerning which the average teacher is all too ignorant, — the life outside of school. The parents, too, will find in it a clear-cut, definite opportunity for them to co-operate with the teacher, thus bringing about a better understanding which cannot but benefit the child.

I have watched with keen interest the outcome of this plan in my home as well as in my school and feel very strongly that the "twenty-four hour schedule" is of very material aid in the solution of two of our most vital problems, — the securing of the requisite amount of sleep and the proper preparation of home lessons.

DENTAL HYGIENE IN NEW BEDFORD.

By W. B. Geoghegan, Director of Field Work, New Bedford Board of Health.

THE work that is being done for the care of the teeth of the school children of New Bedford has, like almost all good work, grown from a small beginning. The inspiration came from dentists who were interested in such work. The clinic work was begun under the auspices of the New Bedford Dental Association. This meant everything for the success of the work, and reflects the greatest credit upon the dental fraternity of the city.

But the care of the teeth of the thousands of children in the schools is a big work, and soon the Dental Association found that in order to have it done properly it should be done by some department of the city government.

The work was taken over by the board of health several years ago and now there are two dental clinics in the schools where dentists are on duty four hours a day during the school year. Extractions and fillings are done at these clinics, the children being referred to them by the teachers and school nurses.

The work done at these clinics is supplemented by that of three dental hygienists. Two years ago New Bedford had but one, now it has three, and will add another to its force within a month. Each hygienist has a portable equipment and a certain number of schools are assigned to her. She establishes herself in these schools in rotation and cleans the teeth of the children in the primary grades.

When there were only two hygienists working in the schools, they confined themselves to the two upper primary grades. This was done in order to make some impression upon those who would soon be promoted to the grammar grades and get beyond their reach. In working on the children in these grades it was found that little or nothing could be done for the six-year molars. They were, in the great majority of cases, either lost or hopelessly decayed. Now that our force has been increased to three we have extended the work so that we take in three grades, and are able to do a great deal for the preservation of the six-year molars. Before the year goes by we hope to have a force large enough to care for the teeth of all the children in the primary grades.

In addition to cleaning the teeth our hygienists give instruction in oral hygiene and teach the children how to use their toothbrushes properly.

This work is not limited to the public schools. It is done in the parochial schools also, and the teeth of 4,736 school children were cleaned last year.

Nothing, I think, has been more popular among teachers and children than this work. There is no difficulty in getting the permission of the parents to have the teeth of their children cleaned.

The boys and girls who have their teeth cleaned are proud of their nice looking teeth and excite the envy of other children.

During the summer vacation of last year we had two hygienists on duty. The children came from the playgrounds and over 1,000 had their teeth cleaned before the September term began. Our dental hygienists were literally besieged by the children who wanted their services.

It is, I believe, as necessary to have dental hygienists to care for the teeth of the children in the primary grades of our schools as it is to have physical directors and gymnasia for the children in the upper grades.

HEALTH PLAYS.

"America's Gift to the World"	American Home Economics Association, Baltimore, Md.
"Baby's Godmothers"	Brooklyn Bureau of Charities, 69 Schermerhorn Street, Brooklyn, N. Y.
"Brushes Quarrel"	Cleveland Department of Education, Cleveland, Ohio.
"Cave of Precious Things"	Journal of Home Economics, May, 1919.
"Child in the Midst"	W. C. T. U., Evanston, Ill.
"Cleanliness Drill"	New York City Bureau of Educational Hygiene. Reprinted from School Health News, January, 1920.
"Clock and the Child"	Chicago Department of Health Bulletin, March 20, 1920.
"Costly Party"	University of Louisville, Ky.
"David and the Good Health Elves"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Don't Care"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Fairy Game"	J. V. McCrillis, West Medford, Mass.
"Friends of Health"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Good News from Babyland"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Health and his Enemies"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Health Champions"	Massachusetts Tuberculosis League, Little Building, Boston, Mass.
"Health Fairies"	J. V. McCrillis, West Medford, Mass.
"Health Plays for School Children"	Child Health Organization of America, 370 Seventh Avenue, New York City.
"House that Health built"	Child Health Organization of America, 370 Seventh Avenue, New York City.
"House the Children built"	Child Health Organization of America, 370 Seventh Avenue, New York City.
"How Dick outclassed Tom"	Webb Publishing Company, St. Paul, Minn.
"Imps and the Children"	National Tuberculosis Association, 370 Seventh Avenue, New York City.

"In a Tenement"	Brooklyn Bureau of Charities, 69 Schermerhorn Street, Brooklyn, N. Y.
"Jewels of Cornelia"	The Journal of Out-door Life, February, 1922.
"Judith and Ariel"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"King Good Health wins"	District of Columbia Tuberculosis Association, Washington, D. C.
"Little Vegetable Men"	Child Health Organization of America, 370 Seventh Avenue, New York City.
"Magic Basket"	Northern Division, American Red Cross, Minneapolis, Minn.
"Magic Oat Field"	Child Health Organization of America, 370 Seventh Avenue, New York City.
"Milk Fairies"	National Dairy Council, Chicago, Ill.
"Milk Fairies"	J. V. McCrillis, West Medford, Mass.
"Miss Fresh Air"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Mother Goose up to Date"	Brooklyn Bureau of Charities, 69 Schermerhorn Street, Brooklyn, N. Y.
"Mountain Meadow"	Iowa Tuberculosis Association, Des Moines, Iowa.
"Mr. I. N. Different is Double-crossed"	Journal of Out-door Life, New York, August, 1920.
"Narrow Door"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"New Child"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Our Friends the Foods"	Brooklyn Bureau of Charities, 69 Schermerhorn Street, Brooklyn, N. Y.
"Pageant in the Interest of Good Health	Iowa Tuberculosis Association, Des Moines, Iowa.
"Pageant of Average Town"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Pageant of Sunshine and Shadow"	National Child Labor Committee, New York City.
"Passing of the Littlest Pageant"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Pilgrim's Health Progress"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Pirate Percy"	American Red Cross, Washington, D. C.
"Playing Visit"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Prince Caloric and Princess Pieta"	American Home Economics Association, Baltimore, Md.
"Quest for the Fountain of Health"	New England Dairy and Food Council, 51 Cornhill, Boston, Mass.
"Review of the Health Regiment"	Massachusetts Department of Public Health.
"Saving Mrs. Briggs' Baby"	New England Division, American Red Cross, Boston, Mass.
"Seven Keys"	Chicago Tuberculosis Institute, 8 South Dearborn Street, Chicago, Ill.
"Shining Goddess" (A Pageant)	Women's Press, 600 Lexington Avenue, New York City.
"Ten Little Germs"	New York City Bureau of Educational Hygiene, reprinted from School Health News, January, 1920.

"The Lion and the Nurse" . .	Massachusetts Department of Public Health.
"Theft of Thistledown" . . .	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Town of Promise"	Philadelphia Health Council, Philadelphia, Pa.
"Trial of Fire"	National Board of Fire Underwriters, New York City.
"Wee Davie"	National Tuberculosis Association, 370 Seventh Avenue, New York City.
"Well Babies" (in "Plays for School Children")	Century Company.
"Wonderful Window" . . .	Child Health Organization of America, 370 Seventh Avenue, New York City.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of February and March, 1922, samples were collected in 84 cities and towns.

There were 1,077 samples of milk examined, of which 219 were below standard, 10 samples had the cream removed, and 24 samples contained added water.

There were 562 samples of food examined, of which 113 were adulterated. These consisted of 1 sample of butter which was decomposed; 1 sample of clams, and 12 samples of scallops, all of which contained added water; 13 samples of eggs, 12 of which were cold-storage eggs not properly labeled, and 1 sample was decomposed; 2 samples of honey which contained commercial invert sugar; 1 sample of ice cream which was low in fat; 1 sample of maple sugar which contained mostly cane sugar; 39 samples of sausage, 32 of which contained starch in excess of 2 per cent, 2 samples were decomposed, and 5 samples were colored; 1 sample of olive oil which contained cottonseed oil; 15 samples of molasses which did not conform to the regulations; and 27 samples of vinegar, 3 of which were colored with caramel, and 24 samples were low in acid.

There were 46 samples of drugs examined, of which 20 were adulterated. These consisted of 20 samples of spirit of nitrous ether which were deficient in the active ingredient.

There were 13 hearings held pertaining to violations of the food and drug laws.

The police departments submitted 981 samples of liquor for examination, 929 of which were above 2.75 per cent in alcohol. The police departments also submitted 50 samples of poisons for examination, 37 of which were morphine, 1 opium, 2 cocaine, 1 heroin, 2 fluid extract of ergot, 1 strychnine, 1 nitric acid, 1 mixture of tobacco and water, and 4 samples were examined for poison, with negative results.

There were 30 convictions for violations of the law, $567 in fines being imposed.

Antone Bennevids of Somerset; Samuel Kuragian of Clinton; Findeisen's Farm Inc. of Lawrence; Frank Phillips of Norwood; and Jacob Shoreman of Amesbury, were all convicted for violations of the milk laws. Findeisen's Farm Inc. of Lawrence appealed their case.

Jose Anesiewicz of Northampton; John Sanedas of New Bedford; Barney Lishner of Boston; Hormidas Heroux and Wilfred Moreau of Lowell; Eastern Provision Company Inc., on 3 counts, of Fall River; Michael F. Markey, Louis J. Farrah and Morris & Co., all of Lawrence; John Rzeszotarski and Michael Zasadziuski of Holyoke; the Biltmore Lunch, 2 cases, of Springfield; and Joseph A. Fenton of Norwood, were all convicted for violations of the food laws. Morris & Co. of Lawrence appealed their case.

Salvatore Diprimo, Antonio Ianueculio and Joseph Schnieder, all of Lawrence; Angel Gonzalez and Karol Taraszka of Westfield; George Gorgontgos and John Maria of Lowell; David B. Levitt of Springfield; and Frank Connizzo of Boston, were all convicted for violations of the cold-storage laws.

Francesco Guelli of Lawrence was convicted for a violation of the slaughtering laws.

David B. Levitt of Springfield was convicted for false advertising.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Milk having the cream removed was produced as follows: 2 samples, by Joseph Rodrique of Portsmouth, R. I.; and 1 sample by Alvaro Costa of South Dartmouth.

Milk containing added water was produced as follows: 3 samples, by Frank Phillips of Norwood; and 2 samples, by Mrs. Herbert Holden of Shirley.

One sample of maple sugar which contained mostly cane sugar was sold by the Central Fruit Store of New Bedford.

One sample of olive oil which contained cottonseed oil was sold by Dominio Carra of Somerville.

Scallops which contained added water were sold as follows: 2 samples each, by Marshall Johnson & Son and H. S. Litchfield & Co., both of Boston; and 1 sample each, by H. R. Orriss, Arthur E. Dorr Company Inc., The Mohican Market, George F. Stodder, Prior & Mahoney, Rawson's Market, Gove & Mollins and R. S. Hamilton, all of Boston.

Vinegar which was colored with caramel was sold as follows: 2 samples, by the Eagle Bottling Company of Fall River; and 1 sample, by the Kormon Water Company of Fall River.

Vinegar which was low in acid was sold as follows: 5 samples, by Joseph Hornstein of Providence, R. I.; 4 samples each, by the Red Cross Products Company and the Eagle Water Company, both of Fall River; 3 samples, by the West Springfield Chemical Company of West Springfield; 2 samples, by the Rhode Island Sales Company of Providence, R. I.; and 1 sample each, by the Kormon Water Company of Fall River and the P. E. Baker Conserve Company of Springfield.

Sausage which contained starch in excess of 2 per cent was obtained as follows: 8 samples, made by the Eastern Provision Company, Inc., of Fall River; 3 samples each, made by Colonial Provision Company of Boston and Zasadzinski & Rzeszotarski of Holyoke; 2 samples each, made by Michael F. Markey of Lawrence and Carl Weitz of Boston; 1 sample each, made by Alfred Thompson of North Andover; B. J. Bertell of Worcester; Henry Bernier, Union Cash Market and Edmond Fugere, all of Easthampton; Apolini Burjnicki of Westfield; Spiegel's Delicatessen and Fred W. Baldau & Co. of Boston; Caetano M. Furtado of Fall River; John Swistak of Adams ; and the Stanz Sausage Company of Chicopee.

Two samples of sausage which were decomposed were obtained from Fenton's Market, Inc., of Norwood.

One sample of sausage which contained coloring matter was obtained from Jacob Schmidt & Son of New Bedford.

There were seven confiscations, consisting of 41 pounds of decomposed beef, 355 pounds of decomposed beef cheek meat, 10 pounds of decomposed lamb, 14 pounds of decomposed pork, 6 pounds of decomposed sausage, 50 pounds of tainted veal, and 63 pounds of decomposed squab.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of January, 1922: 349,590 dozens of case eggs, 209,180 pounds of broken-out eggs, 609,012 pounds of butter, 2,090,777½ pounds of poultry, 4,502,461 pounds of fresh meat and fresh meat products, and 1,002,192 pounds of fresh food fish.

There was on hand Feb. 1, 1922, 546,600 dozens of case eggs, 399,971 pounds of broken-out eggs, 5,529,634 pounds of butter, 7,648,011½ pounds of poultry, 15,327,233 pounds of fresh meat and fresh meat products, and 7,202,329 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of February, 1922: 279,450 dozens of case eggs, 271,983 pounds of broken-out eggs, 879,339 pounds of butter, 739,082 pounds of poultry, 3,161,929 pounds of fresh meat and fresh meat products, and 1,128,496 pounds of fresh food fish.

There was on hand March 1, 1922, 26,490 dozens of case eggs, 434,384 pounds of broken-out eggs, 3,820,407 pounds of butter, 6,998,086½ pounds of poultry, 15,241,643 pounds of fresh meat and fresh meat products, and 4,636,415 pounds of fresh food fish.

RÉSUMÉ OF COMMUNICABLE DISEASES.

February, 1922.

General Prevalence.

There were 12,786 cases of communicable diseases reported for this month as compared with 6,735 cases reported for January. This increase over the number of cases reported last month was due to increased prevalence of measles, influenza and lobar pneumonia.

Chicken Pox. — There were 624 cases of this disease reported for the month. This is less by 200 cases than the total for January.

Diphtheria also showed a lessened incidence with 790 cases reported as compared with 911 for last month.

Dog bite requiring anti-rabic treatment decreased to 10 cases for this month.

Encephalitis Lethargica. — There were six cases reported for the month.

Epidemic cerebrospinal meningitis was reported in 8 instances.

German Measles. — The reported incidence for the month was 45 cases.

Gonorrhea and Syphilis. — Both diseases showed substantial decreases in the reported incidences; the totals for the month were 315 for the former and 152 for the latter.

Influenza increased from 135 cases for January to 5,222 cases for this month. This increase in the number of cases was made up by the increased prevalence of this disease in the eastern and central parts of the State. The Connecticut Valley and Berkshire districts escaped almost entirely. The type of influenza as seen this year has been mild in character.

Measles increased from 1,275 cases for January to 2,062 for this month. The total for February, 1921, was 2,325 cases.

Pneumonia, lobar, increased from 575 cases for January to 987 cases for this month. This increase has, as in influenza, been made up by reports from eastern and central cities and towns.

Scarlet fever was reported in about the same number as last month. The total for the month was 951 cases.

Tuberculosis, pulmonary, was reported in about the usual number, with the reported incidence of 515 cases.

Tuberculosis, other forms, was reported in 64 instances.

Typhoid fever was reported 31 times. The 31 cases represent 18 scattered cases and 13 cases in an institution for children.

Whooping Cough. — There were 391 cases reported for this month. The total for January was 326.

Rare Diseases.

Actinomycosis was reported from Brockton, 1.

Anterior poliomyelitis was reported from Boston, 1; Quincy, 1; Worcester, 2; total, 4.

Dog bite requiring anti-rabic treatment was reported from Belmont, 2; Billerica, 1; Holyoke, 3; Lexington, 1; Lowell, 4; total, 11.

Dysentery was reported from Boston, 1.

Encephalitis lethargica was reported from Boston, 2; Cambridge, 1; Fall River, 1; Framingham, 1; West Boylston, 1; total, 6.

Epidemic cerebrospinal meningitis was reported from Belmont, 1; Boston, 1; Falmouth, 1; Holyoke, 1; Leominster, 1; Swampscott, 1; Worcester, 2; total, 8.

Malaria was reported from Cambridge, 1; Westfield, 1; total, 2.

Septic sore throat was reported from Amherst, 2; Andover, 1; Boston, 4; Clinton, 1; Haverhill, 1; Leominster, 2; Northampton, 1; Sharon, 1; Weston, 1; total, 14.

Tetanus was reported from Boston, 1; Peabody, 1; Upton, 1; total, 3.

Trachoma was reported from Boston, 2; Brockton, 1; Cambridge, 2; Norwood, 1; total, 6.

Trichinosis was reported from Boston, 5; Stoughton, 1; total, 6.

DISTRIBUTION.

All Communicable Diseases.

	February, 1922.	February, 1921.
Total cases	12,786	8,970
Case rate per 100,000 population	324.8	229.8

Certain Prevalent Diseases.

	February, 1922.	February, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:			New Bedford	(13)	59
Total cases	790	795	Somerset	(0)	13
Case rate per 100,000 population	20.1	20.3	Boston	(231)	264
			Brockton	(8)	42
			Marlborough	(2)	9
			Haverhill	(18)	24
			Chicopee	(5)	12
			Montague	(0)	7
Measles:			Boston	(460)	514
Total cases	2,062	2,325	Canton	(2)	8
Case rate per 100,000 population	52.4	59.5	Quincy	(3)	174
			Everett	(4)	58
			Manchester	(0)	11
			Peabody	(1)	60
			Concord	(0)	9
			Lawrence	(23)	126
			Medford	(9)	128
			Methuen	(1)	115
			North Andover	(0)	27
			Somerville	(17)	172
			Waltham	(4)	163
			Wayland	(0)	41
			Westfield	(0)	36
			Greenfield	(3)	39
Scarlet fever:			New Bedford	(11)	37
Total cases	951	1,192	Plymouth	(0)	23
Case rate per 100,000 population	24.2	30.5	Wareham	(1)	8
			Abington	(2)	15
			Brockton	(12)	61
			Brookline	(6)	10
			Cambridge	(20)	34
			Newton	(5)	10
			Quincy	(9)	27
			Rockland	(0)	10
			Danvers	(2)	7
			Everett	(5)	12
			Malden	(0)	26
			Salem	(8)	26
			Waltham	(4)	24
			Adams	(0)	21
Typhoid fever:			Northampton	(0)	13
Total cases	31	43			
Case rate per 100,000 population	.8	1.1			
Whooping cough:			Attleboro	(0)	5
Total cases	391	713	Foxborough	(1)	8
Case rate per 100,000 population	9.9	18.2	Norwood	(0)	7
			Rockland	(0)	20
			Walpole	(0)	6
			Newburyport	(0)	8
			Belmont	(1)	16
			Templeton	(0)	23
			Worcester	(5)	1
Tuberculosis, pulmonary:					
Total cases	515	476			
Case rate per 100,000 population	13.1	12.2			
Tuberculosis, other forms:					
Total cases	64	82			
Case rate per 100,000 population	1.6	2.1			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the case reported during the current month.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, EUGENE R. KELLEY, M.D.

Public Health Council.

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The Southeastern District	CHARLES W. MILLIKEN, M.D., New Bedford.
The Eastern District	GEORGE T. O'DONNELL, M.D., Boston.
The Northeastern District	LYMAN A. JONES, M.D., Swampscott.
The North Midland District	CHARLES E. SIMPSON, M.D., Lowell.
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The Connecticut Valley District	HAROLD E. MINER, M.D., Springfield.
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MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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THE VITAMINES: THE FACTS AND THE "BUNK."[1]

By Hermann C. Lythgoe, Director, Division of Food and Drugs, Massachusetts Department of Public Health.

I HAVE no desire or intention of criticising the scientific work which has resulted in the discovery of those wonderful unknown substances called vitamines; but I wish to point out certain abuses of these discoveries which have been made by commercial houses, and the relation of these abuses to our food and drug laws and our false advertising law.

Let us first consider the vitamines historically, biologically and chemically, apart from the bunk. As early as 1870 Kramer stated regarding scurvy, "if you can get green vegetables; if you can prepare a sufficient quantity of fresh antiscorbutic juices, if you have oranges, lemons, citrons, or their pulp and juice preserved with whey in cask, so that you can make a lemonade, or rather give to the quantity of three or four ounces of their juice in whey, you will, without other assistance cure this dreadful evil."

In 1896 Hopkins, an Englishman, concluded that animals required something in their foods other than the common nutrients, and called these hypothetical substances "accessory food factors."

In 1898 Eijkman, a Dutch chemist, succeeded in producing in fowls a disease called polyneuritis, which is substantially beriberi, by feeding polished rice, and was able to cure the disease by feeding rice polishings.

In 1907 Fraser and Stanton showed that an alcoholic extract of rice polishings contained the curative for beriberi.

In 1909 Stepp, a German, discovered that if bread and milk was extracted with alcohol-ether the residue was unsuitable for growth, and that the addition of purified fats did not supply the deficiency. He discovered that the addition of the substance left after the evaporation of the alcohol-ether extract was capable of promoting growth.

In 1909 and 1910 Osborne and Mendel showed that in rat-feeding experiments, no matter how efficient the diet was, the rats refused to grow unless there was added to the diet a factor found in milk.

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[1] An address given before the Northeastern Section of the American Chemical Society, Boston, Mass., on April 14, 1922.

They also discovered that the factor was found in two fractions, namely, in the fat, and in the fat and protein free milk, and that the absence of either fraction would prevent growth.

In 1911 Casimir Funk obtained by chemical fractioning of extracts of rice polishings a crystalline substance, highly curative for the disease beriberi, and a year later obtained this substance from brewers' yeast. This substance contained nitrogen in its basic form, and, since it is essential to life, he gave it the name "vitamine." Subsequently it was discovered that the dietary essential was an impurity in the crystals, which has resulted in considerable discussion regarding the validity of the name "vitamine."

About the time that Funk published his findings and named the product, Suzuki, a Japanese, and his fellow workers Odake and Shimamura, isolated a curative substance from rice polishings which they called "oryzanin."

Dietary studies made in the Wisconsin Agricultural Experiment Station, under suggestions from Prof. S. M. Babcock, showed that animals nourished by the same amount of proteins, fats and carbohydrates were not furnished with sufficient bodily needs in all cases. These experiments were reviewed and continued by McCollum, who, in 1912, announced the "unidentified dietary factor fat-soluble A" found in milk fat and egg fat.

Notwithstanding the fact that at least one of the vitamines is not an amine, and the evidence of the amino nature of another is far from satisfactory, the name "vitamine" is here to stay, and at present we believe there are at least three, — the fat-soluble "A," the water-soluble "B," and the antiscorbutic "C," and, possibly, the antirachitic "D," with indications that we have not yet reached the limit. They are all of vegetable origin and their presence in animal foods, as in milk, depends upon the character of the food eaten by the animal. We know practically nothing of the chemical nature of these substances, except considerable of what they are not.

The testing of vitamines is done by time consuming and, to some extent, unsatisfactory biological methods. Animals are fed upon diets otherwise sufficient, but deficient in the specific vitamine to be tested for. When the animal shows by lack of weight or other physiological abnormality that it is suffering from the dietary deficiency disease, there is added to the diet the substance to be tested, and the animal recovers if the specific vitamine is present.

The study of vitamines is of primary importance to the dietitian, to the infant specialist, and to the physician dealing with certain diseases, but its interest to the public is due to the mysterious nature of the substances. The human race has managed to survive for thousands of generations, depending upon its appetite in the selection of its food, and, except in certain instances of famine, etc., a knowledge of the vitamines would have had little or no beneficial effect upon the race, broadly speaking. Nature works in a horribly ruthless manner, but man has always been making more or less effort to improve conditions for the weak and downtrodden; consequently, the general average condition of the human race is somewhat inferior physically to that of the wild animals, and more care is necessary in selecting our diets.

The articles of food most liable to contain no vitamines are purified chemicals, such as starch, sugar, vegetable oils, "purified" flour, etc. The articles of food containing all three vitamines simultaneously — the "A," "B" and "C" include raw milk, liver, germinated grains, cabbage, tomatoes, beet roots, carrots, cauliflower, lettuce and spinach. Most other foods contain one or more vitamines, and it may be stated, as a general principle, that given a sufficiently miscellaneous assortment of foods to choose from there will be no dietary deficiency diseases.

The "A" vitamine is comparatively stable to heat alone, but in the presence of oxygen it is rapidly destroyed by heat. Hydrogenation destroys it, but acids and alkalis have but little effect.

The "B" vitamine in acid or neutral solutions is fairly stable to heat, but in alkaline solutions it can be quickly destroyed at 90° C.

The "C" vitamine is much more sensitive to heat and alkali than the others. Temperatures above 50° C. are more or less destructive according to the time factor. Cabbage cooked one hour at a temperature between 80° and 100° C. loses 90 per cent of its antiscorbutic properties.

Recently two books on the subject of vitamines have been published: one, "The Vitamine Manual," by Walter H. Eddy, published by the Williams & Wilkins Company, Baltimore, Md., presents the essential data of the new food factors in an interesting manner; the other, one of the A. C. S. monographs, "The Vitamines," by H. C. Sherman and S. L. Smith, published by the Chemical Catalog Company, New York, covers the entire subject in considerable detail, and is probably the best book published upon the subject.

The belief in the supernatural is even now highly prevalent, and appeals to that belief usually bring results, other things being equal. The peculiarly mysterious properties of the vitamines have popularized them, and they have been swallowed hook, line, bob and sinker by the public. It is worthy of note that the same procedure ensued relative to electricity, radium and the Einstein theory. Thirty years ago electric belts, electric inner soles for shoes, electric batteries, etc., were quite commonly used for the mitigation of real and imaginary diseases, while thirty years after we accomplish better results with electric coffee pots and electric washing machines. Radium was not very popular as a general cure-all, possibly owing to the expense, and the Einstein theory is not adaptable. The vitamines, however, are so constituted that they can and are being sold at high prices to the incredulous, to mitigate mostly imaginary evils.

I believe that the continued sale of these products is doomed to failure for purely psychological reasons. A proprietary medicine, to be successful, must possess two prime attributes: first, it must have a disagreeable taste or odor, and, second, it must show immediate physiological results. The vitamines must of necessity fail in these attributes, unless, as in some instances, drugs are added, because they are tasteless and because the abundance of vitamines in our daily diets is such that preparations containing these agents would have no visible effect. These commercial preparations are essentially yeast or other vegetable concentrates, and to some are added strychnine, phenolphthalein and organic iron compounds to secure the physiological results so necessary for the commercial success of a proprietary remedy.

No person takes more care in his advertising than the proprietary medicine man. He knows the laws, their limitations, the efficiency of enforcement, and knows that outside of food and drug advertisements there is little or no systematic policing of false advertisements. He is, therefore, careful and the vitamine bunk shows practically 100 per cent efficiency in complying with the food, drug and advertising laws. Let us consider the bunk: —

> Weigh Yourself — Then Take Vitamine Tablets — and watch the results. Thin, weak, run-down folks who wish to put on Good, Firm Flesh, etc., should try this wonderful nutrition product.

The advertisement shows a female figure tipping the scales at 95, with scrawny neck, ungainly figure, flabby tissues and sallow complexion. Facing her is the figure of a buxom female of 125 pounds, with clear skin, firm flesh, and well-rounded figure chock full of vitamines.

The advertisement states: —

> We do not claim, however, that vitamines will put flesh on everybody. Some people are naturally too thin and will probably remain so in spite of vitamines and everything else.

This advertisement advises obtaining your strychnine from other sources.

Another advertisement of the same proprietary calls attention to a startling exposure, and, picturing a young lady in an abbreviated costume, truthfully states: —

> Take one single substance from the blood of the beautiful, healthy, well-formed woman in this picture, and she will become weak, thin, emaciated like the thin, scrawny woman in the picture below, on three or even four big meals a day — put this magic-like substance back and she will quickly put on good, firm flesh and become rosy cheeked, strong and vigorous, even on two meals a day.

It again calls attention to the fact that the preparation does not always work, but neglects to add that our daily diets usually contain this one single substance so necessary for our continued existence.

A description of a different product shows two female figures of different weight, appearance and dimensions, the inference being that vitamines did it.

The directions are to first weigh and then measure yourself, then take two tablets with each meal and keep up the process until you are satisfied with your gain in weight and energy. Note the complete absence of the time factor. The gain in energy is insured by the addition of strychnine to the tablets.

Another advertisement of the same drug is similarly worded. Just above the picture of the young lady chock full of vitamines, pep and strychnine are directions to take some tablets and watch the surprising results. Does this possibly refer to an overdose of strychnine? I hope not. There was one death in this State this year due to too many strychnine tablets in a child.

An advertisement referring to a yeast tablet contains one false statement. Referring to iron and vitamines it says: "Both of these elements are lacking in the average modern diet." They guarantee to "bring satisfactory results or your money back." The proviso covers a multitude of sins.

Certain definite measurements of a young lady are given in another advertisement. In twenty-two days she increases in weight 10 per cent, chest, 8.6 per cent, calf, 8.3 per cent, arm, 5.3 per cent, neck, 4.1 per cent. There is still room for improvement. She will be heavier when she reaches the age of forty.

An interesting advertisement designed by a man who recognizes the bunk and takes the bull by the horns says: —

> The discovery and scientific application of the elementary units of body building foods are wonderful helps in rebuilding the ailing. The average person who has robust health and strength does not worry about vitamines and calories; he simply uses —— —— appetizing and high in food value.

To attract attention this advertisement is headed "*Vitamines and Calories.*"

The discovery of the "A" vitamine has given a tremendous stimulus to advertisements concerning the dairy interests. The per capita consumption of milk and butter has materially decreased since 1916, but is now increasing, due to reductions in price rather than to the publicity. The general public prefers butter to oleo, but when the prices go too high, the consumption of oleo always increases, and with falling prices it decreases. With increasing milk prices the consumption is curtailed, and with decreasing prices the consumption is increased. The advertising of milk as a food with reference to its vitamine content is in general in accordance with the facts, except that no mention is made of low or no vitamine milk, which is something more than a scientific curiosity.

Kennedy and Dutcher state in "The Journal of Biological Chemistry," February, 1922, page 538: —

> 1. The presence of vitamines "A" and "B" in cow's milk is dependent upon their occurrence in the ration.
>
> 2. Stall-fed cows will produce a milk rich in vitamines, provided their ration consists of a proper combination of grains and leafy foods.

One milk advertisement is rather peculiarly worded. The originator thereof believes that without vitamines we would only half exist, when, in fact, we would cease to exist.

An advertisement regarding a certain brand of oleo is not false, but is peculiar from a business viewpoint. It calls attention to the high quality of the oleo because of the high vitamine content of the milk used in its manufacture. A strict interpretation of this advertisement would be construed as advice to eat butter. Oleomargarine has reached the point where it can stand upon its own merits, and need not depend upon its slight association with the dairy industry to make its sales effective.

There has recently been put on the market an article consisting of condensed skimmed milk emulsified with cocoanut oil. It is devoid of the "A" vitamine, is sold for what it is, and is labeled, "Do not use for infant feeding," and saves considerable skimmed milk which otherwise would go into the sewers. An attempt is being made to prevent the interstate shipment of this article by congressional action for the purpose of saving the lives of children who would be given the article for food. The proponents of this measure do not consider that a mother who would feed her child an improper diet in one respect would continue to select improper diets if one objectionable substance were removed. It would be disastrous to adults if only infant foods were permitted access to our markets.

The yeast fad is peculiar. Yeast is high in the B vitamine, but why eat yeast cakes when so much more palatable foods containing the same substance in abundance are readily available.

A recent yeast advertisement quotes a diet including boiled potatoes and buttered peas, claiming deficiency unless yeast is added. Unfortunately the paper carrying the advertisement is published in another State, and our laws are not applicable under such conditions. Another states: "They pay heavily for it in later life," but it also could say, They pay heavily for it now. And still another says: "Add two or three cakes to your own daily diet and note the difference," which statement could readily refer to increased cost of your meals. The statements regarding the "B" vitamine content of yeast are substantially correct, but the insinuations that the general public is subsisting upon a low or vitamine-free diet are incorrect.

Commercial yeast contains about 55 per cent starch and 25 per cent water and is sold at $1.43 per pound. The protein content is about 6 per cent. If the starch is deducted at 8 cents per pound, we are paying $3.09 per pound for an article containing 13.3 per cent protein with a fuel value of 284 calories per pound, or at the rate of $12.45 per 1,000 calories. Steak cod, 16.7 per cent protein, 0.3 per cent fat, 325 calories per pound, at 15 cents per pound costs $1.96 per 1,000 calories. Turkey at 65 cents per pound, 21.1 per cent protein, 22.9 per cent fat, allowing 25 cents per pound for the fat value, will cost, fat free, 76 cents per pound for 27.4 per cent protein and 511 calories per pound, or $1.49 per 1,000 calories. Spinach, strictly a nutritional and dietary food, consumed largely for its vitamine content, at 25 cents per peck, or 8 cents per pound, will cost $2 per 1,000 calories of protein. Yeast is an expensive food.

One cannot grow fat on vitamines alone, neither can one do any work on vitamines alone, but in addition one needs some fat, some carbohydrates, a variety of proteins and mineral substances. A deficiency of any of these will produce serious pathological disturbances which require the services of the skilled dietitian, who can make a proper diagnosis of the trouble, rather than those of the proprietary medicine man who does not know you or your trouble. The popular application of the vitamines is to eat three square meals a day and do not worry.

This was well expressed by Dr. H. W. Wiley at the last meeting of the Association of Official Agricultural Chemists, as follows: —

Milk and greens have Vitamines
  Enough for little Sid,
So he, at least, will need no yeast, —
  A real self-raising Kid.

OPEN-AIR CLASSES, BOSTON PUBLIC SCHOOLS.

By William H. Devine, M.D., Director of Medical Inspection.

Object. — The primary object of open-air classes is to improve the health of pupils. This should not be interpreted to mean, however, that mental work, school discipline, or programs planned for the average, normal child are to be set aside completely, neither is such a course necessary.

Type of Child. — Physically debilitated children who are not ill to a degree sufficient to make hospital or home treatment necessary, but who are in such a lowered physical condition that the routine classroom program would be unprofitable both mentally and physically, are in these classes. Children assigned to open-air classes are the anemic, malnourished, glandular, undersized, pretubercular, also cardiac cases, especially those with failing compensation.

Equipment.

Classroom.

1 Molthrop desk for each child.
1 blanket for each child.
1 chest, with lock and key, for blankets.
1 cloth screen for window.
Steamer chairs.

Kitchen.

1 sink, with hot and cold water.
1 gas stove.
1 table.
1 large cabinet for utensils.
1 enamel cup for each child.
1 teaspoon for each child.
2 trays.
1 large preserving kettle.
1 ladle.
1 dishpan.
1 dish drainer.
1 mixing bowl.
1 mixing spoon.
2 canisters for cocoa and sugar.
A supply of paper napkins, dish towels, oilcloth, soap, matches, scouring powder.

An attendant is employed by the school department to prepare and serve the luncheons and to do other necessary work in connection with the luncheon service.

Temperature. — The temperature of open-air classes is kept as near 55° F. as possible.

Organization. — Classes consist of not more than two grades, and the number of pupils is limited to twenty-four for classes composed of two grades and thirty pupils for classes composed of one grade.

Teachers in sympathy with the work are selected for the conduct of these classes.

Daily Program. — A daily program specially fitted to the needs of these children has been adopted. All programs are based upon the fatigue index and upon the relative mental strain of different studies.

Physical Examinations and Supervision. — Each pupil is carefully examined by the school physician when admitted to the open-air class, and every six months thereafter.

School physicians visit these classes weekly, and school nurses visit them daily.

Each pupil is weighed and measured monthly and a record of the result recorded.

Physical defects are corrected and dental work completed as soon as possible.

Follow-up Work. — The school nurse visits the home of each child selected for an open-air class, to acquaint the parent or guardian with the aims and purposes of the class and to give the necessary instruction relative to the home care of the child, especially on questions of proper food, hours of sleep, fresh air in the home, and sufficient amount of rest.

There are twenty-four open-air classes in the Boston public schools. The following report on several of the classes located in different sections of the city, and composed of different nationalities, is presented: —

HANCOCK DISTRICT (NORTH END) — CUSHMAN SCHOOL, GRADE II.

Nationality. — Principally Italian.

The average attendance of the second grade, Cushman School, has been 94 per cent, with very little sickness, excepting colds occasionally. The children have improved, have more energy, and are stronger. Their academic work is up to the average of the second grade. The average underweight in September, 1921, was 6.21 pounds, while in February, 1922, it is 3.98 pounds. The average gain is about 4.26 pounds.

The luncheon consists of cocoa and crackers. The cocoa is made from Grade A milk and water (equal parts), with the best bulk cocoa, sweetened with granulated sugar. An attendant is engaged to prepare and serve this luncheon, and all utensils are cared for under excellent sanitary conditions.

The children who are able pay 2 cents for 5 ounces of cocoa with two oatmeal, Graham or soda crackers. All children in the open-air classes have lunch whether they pay or not, the deficit being made up by a fund of the school nurses for three classes; the fourth class is kept up by the teacher through the kindness of a friend.

Many children bring fruit and sandwiches from home, also some bring luncheon in the afternoon. *Much of the cheap candies and pickles are a thing of the past.* When the luncheons were started, our children had to be educated to drink milk and cocoa, but this condition is improving right along.

LOWELL DISTRICT (JAMAICA PLAIN) — LOWELL PORTABLE, GRADES III AND II.

Nationality. — Principally American.

The average attendance for this grade is 93 per cent. The physical defects are mostly malnutrition, organic heart, cervical glands, slight curvatures and flat chests. Some of the children who were marked as malnutrition cases in September have gained almost enough to place them in the normal group. It has been noticed that pupils who have not gained much are two children from families with a history of tuberculosis, one child who has organic heart disease, and one who has had diphtheria. It is also noticed from years of observation that organic heart cases in all grades *gain very slowly.* The pupils who had no defect except malnutrition are gaining very well. The average gain since September has been 3 pounds. When we consider the defects of these pupils and their ages, this is a very good gain. All dental work has been completed. Academic work compares very favorably with regular grade work.

NORCROSS DISTRICT (SOUTH BOSTON) — GEO. F. HOAR SCHOOL, GRADE V.

Nationality. — Principally American.

This class is composed of twenty-seven pupils. The average underweight in September of these children was 6 pounds. The average gain from September to February was 4 pounds. The academic work compares very favorably with that of the regular grades. The average attendance is 96 per cent. There were no contagious diseases among these children this school year.

At 11 o'clock the children are served with a luncheon. This luncheon consists of a nourishing soup with crackers, or cocoa and crackers. Usually an apple is added.

Special attention is given daily by the classroom teacher and school nurse to the general physical condition of the children. Home visits are made by the nurse to instruct the parents, and thus supplement so far as possible the work of the school.

The outward physical condition of these pupils shows to the observer great improvements which figures can hardly demonstrate. The general demeanor indicates contentment and alertness.

QUINCY DISTRICT (CITY PROPER) — ANDREWS SCHOOL, GRADE II.

Nationality. — Italian, Syrian, Armenian and Hebrew.

Thirty children were placed in this class in September, 1921. The attendance has been good, — average, 97 per cent. *None of the children have had any contagious diseases this year,* and very few have had colds or other illnesses.

The academic work carried on in this class does not differ from work in other second grades. The children are up to the standard in all their studies.

A lunch is served in the classroom by an attendant each school morning at 10.15 o'clock. This lunch consists of cocoa and crackers, for which the children pay 10 cents per week. In addition to this they bring bread and butter, crackers or fruit from home. The children enjoy this midmorning lunch and seem to derive great benefit from it. The teacher reports that they appear to be more ready for work after the recess period which follows, and, on the whole, are able to do more efficient work.

The children have improved in general appearance, and the mothers seem interested and willing to co-operate so far as possible.

These pupils have been examined twice during the year and are weighed and measured monthly. The greatest gain in weight from September to February, 1922, is 9 pounds; the smallest gain is $1\frac{3}{4}$ pounds; and the average gain, 3 pounds.

QUINCY DISTRICT (CITY PROPER) — QUINCY SCHOOL, GRADE V.

Twenty-eight boys were placed in this class in September. The teacher reports: "These boys have kept up in their work with others of the same grade. I notice an improvement in the color of their cheeks, and their skins are clearer; also, they are not so nervous. Most of them bring a pint of milk a day, and whatever wholesome food with it as they wish. Those who do not have the milk receive soup, rice, cheese and crackers or nuts. The attendance has been good, — average, 98 per cent, — and the boys have had almost no illnesses." There were *no contagious diseases.*

The children were examined twice during the school year and are weighed and measured monthly. The greatest gain in weight for the period September, 1921, to Feb. 1, 1922, was 6 pounds; the smallest gain was 1¼ pounds; and the average gain, 3 pounds.

WASHINGTON DISTRICT (WEST END) — WASHINGTON SCHOOL, GRADES III AND II.

Nationality. — Principally Italian.

Academic Work. — This compares very favorably with parallel grades. The children have same course of study to follow. Smaller number of pupils per teacher and improved physical condition make possible the keeping of pupils well up to grade.

Attendance. — Average attendance from September, 1921, to February, 1922, 99+ per cent.

Physical Improvement. — General improvement all along the line. School physician reports that they have all come along "splendidly." All dental work is completed. General appearance of class is better; color in faces, eyes bright, increased vitality, freedom from colds.

Gain in Weight. — Greatest gain, 8¾ pounds; smallest gain, 2 pounds; average gain, 4 pounds.

Lunch. — The greatest step forward is the cultivation of taste for cereals. Children eat and like oatmeal and corn meal mush with warm milk and just a suspicion of sugar. In addition, they have cocoa with unsweetened crackers. Crackers are sometimes spread with peanut butter or orange marmalade made in the kitchen.

Menu for Week.

Monday. — Oatmeal with two plain crackers.

Tuesday. — Cocoa with peanut butter or marmalade sandwiches.

Wednesday. — Boiled rice with raisins, hot milk and plain crackers.

Thursday. — Indian meal mush, warm milk, plain crackers.

Friday. — Vegetable soup made of potatoes, parsnips, carrots, onions and plenty of milk and a little butter.

All food is prepared in the school diet kitchen.

It was rather "uphill" work to get the children to use carrots, but now they are enthusiastic about "health" and are glad to eat anything after being told the "why" of it.

General Statement. — The good, fresh air and lunches, combined with the smaller number to a class (which permits of individual child study and attention), have resulted in a marked physical and mental improvement. Physically, they have more vitality, present a much better appearance because their color is good and their eyes brighter, and they are practically free from colds and can work now for longer periods of time without being fatigued. Their habits of living and eating are improved to a marked degree. Mentally, children are happier, less irritable, and have acquired habits of self-control; their minds are keener and more active. Because of modification of program adapted to needs and condition of children, teachers can accomplish work that would be impossible otherwise.

WELLS DISTRICT (WEST END) — WINCHELL SCHOOL, GRADE II.

Nationality. — Principally Hebrew.

The class started in September, 1921, with 30 pupils, — average underweight, 14 per cent. Physical examinations showed 23 pupils with defects as follows: 20 malnutrition, 3 tonsils and adenoids, 3 organic cardiac disease, 4 orthopedic disease, and 3 cervical glands.

All dental work has been completed and all defective vision cases corrected. It seems impossible to convince the parents that a tonsil operation is as safe in the winter as it is in the summer.

A midmorning luncheon is served in the classroom and consists of 5 ounces of milk, or cocoa, and two crackers, at a cost of 3 cents a day. Most of the children bring an extra piece of bread and butter from home.

The class is kept up to grade with the regular academic work. There has been little illness and very few colds. Attendance has been good, with an average of 97 per cent from September, 1921, to Feb. 1, 1922.

WENDELL PHILLIPS DISTRICT (WEST END) — PETER FANEUIL SCHOOL, GRADE IV.

Nationality. — Principally Hebrew.

There are 30 pupils in the class. The average per cent underweight in September, 1921, was 18 per cent. Physical defects were as follows: 30 malnutrition, 5 hypertrophied tonsils, and 2 defective vision.

Children selected from five rooms, Grade IV, showed marked signs of malnutrition requiring medical treatment. The children are weighed and measured monthly. They show great interest in their record cards and are pleased when they have gained in weight and height. At this time a talk about food, rest, sleep, fresh air, — day and night, — bathing, clean teeth, clean clothing and dry feet is given.

The midmorning luncheon in school in the cold months consists of hot cocoa. Children bring bread and butter from home. Milk in bottles is served in warm weather and bread and butter is brought from home. Children learn to eat their food properly, and are learning table manners.

The average attendance is 95 per cent. We had perfect attendance on Friday, February 17, when the temperature was below zero and other rooms in the building had many absentees.

Improvement in school work is noted. Children are keeping up with the grade work.

Steamer chairs in classroom are used for rest period. Home visits are made and the parents are told what must be done at home to cure underweight and malnutrition. They are advised as to the kind of food a malnourished child should have, — milk, cereals, bread, butter, eggs, potatoes, other vegetables, fruit. They are also advised against giving candy, ice cream and sandwiches before meals. Children are advised against hurried, irregular meals, and also on health habits, fresh air, proper amount of sleep, frequent baths, warm clothing.

Co-operation of parents on correction of physical defects is sought. All cases are under care of family physician or hospital.

In observing the results of open-air classes, the following facts are noted: absence of contagious diseases; high percentage of attendance of pupils who if they were in regular classes would be absent on account of frequent colds and other slight illnesses; ability to do the academic work of the regular grade.

Unusual opportunities are afforded in these classes for the practical application of lessons in health habits, namely, proper kinds of food; proper method of eating; correct table manners; cleanliness of person and surroundings; proper amount of rest, play and exercise; the need at all times of fresh air; proper clothing for all seasons of the year.

The co-operation of the parents is clearly demonstrated by the fact that practically all of the remedial physical and dental defects are corrected early in the school year. All of the twenty-four open-air classes have their dental work completed as well as defective vision and other physical defects corrected.

These children learn the lessons of right living, the value of fresh air and sunshine and are agents for disseminating this knowledge in their homes and to their playmates. The marked improvement shown in color, weight, mental and physical activity, and attendance at school among children attending these classes has been so firmly established among educators and physicians that no recommendation is necessary for their continuance and growth.

FOOD FOR THE SCHOOL CHILD FROM SIX TO TWELVE YEARS OLD.

By Alzira Wentworth Sandwall, S.B., Health Instructor in Foods, State Department of Public Health.

WHAT shall it profit a child if he gain the whole curriculum and lose his health?

How much of the curriculum can a child gain who is already below the normal physically, and how shall we safeguard the healthy child?

The weighing and measuring of school children throughout the country has shown that, on an average, from 15 to 25 per cent of the children in the elementary schools are underweight for their age and height. Dr. Josephine Baker of New York says that one out of every four children in this country is undernourished. In many instances this underweight is found to be due to wrong or insufficient food.

The diet of the school child needs as much attention as the diet of the infant. Dr. Roger H. Dubois has made the statement that if you surround the child, or the young of the lower animals, with every favorable influence but a properly adjusted food supply, defective growth is the result. A defective food supply may not be due to scanty food or food of poor quality but to faulty combination of foods. It is true, also, that many children go to school with no breakfast or with an apology for breakfast, have no midmorning luncheon in school, either remain at school at noon to eat a cold luncheon, or hurry home, eat hastily, and rush back to school, perhaps munching candy on the way. In the afternoon, on the way home, again they indulge in sweets and come to the supper table with no appetite and are unable to eat a satisfactory supper.

Food makes the Body and supplies Energy.

We must always remember that food is material which makes the body of the growing child, and the material which supplies the child with energy for work and play. There is a very definite relationship between food consumption and energy. Because of the demand of the growing body, the child does not have a reserve supply of fuel for energy stored in the body as does the adult, and it is necessary, therefore, to supply him daily with sufficient material for energy as well as for growth.

MASSACHUSETTS
MILK
EGGS
CEREALS
FRUIT
VEGETABLES
BREAD
BUTTER
SIMPLE SWEETS
MILK
EVERY DAY
THE HIGH-WAY TO HEALTH IS REACHED BY FOOT PATHS OF RIGHT FOOD, THE WATCH WORD IS MILK, THE GUIDE POSTS ARE RIGHT FOOD HABITS.
DEPARTMENT OF PUBLIC HEALTH.

If the child is to grow strong and healthy and to keep well, he must eat regularly every day the foods which will produce a healthy body and supply him with energy to play and work.

What the School Child's Diet should include.

The food of the school child differs little from that of the younger child except that the quantity should be increased to supply the needs of the larger child.

The school child's diet should include daily milk, eggs, a small amount of meat, fish, etc., fruits and vegetables, especially green vegetables, brown and hard breads, butter, and water.

MILK.

Milk should be the foundation of the diet. The school child should take at least three cups of milk daily. Much of the milk can be taken as a beverage with the meals and for the midmorning luncheon. If the child has not been trained to take milk in this form, there are many other ways in which it can be added to the diet.

Food Value of Milk.

Milk contains the best protein and minerals to build the body, vitamines to promote growth and maintain health, and easily digested fat and sugar to supply energy for work and play. Milk contains more lime than a quart of saturated lime water. Lime is especially necessary to build bones and teeth and to maintain the nervous equilibrium.

There is no food which can take the place of milk in the diet of the school child. Dr. E. V. McCollom says that no family of five persons has a right to purchase any meat until each member has been provided with at least a pint of milk daily.

Ways to serve Milk.

1. Cereals can be cooked in milk and served with milk.
2. In cocoa.
3. In junket.
4. In vegetable sauces.
5. In cream soups.
6. In custards and puddings.
7. In cream toast.
8. In scalloped foods.
9. As cottage cheese.

Cocoa.

To serve milk in cocoa the following recipe will be helpful: —

4 teaspoonfuls of cocoa.	1 cup of boiling water.
4 teaspoonfuls of sugar.	1 cup of hot milk.

Mix the cocoa and sugar, pour over the boiling water, and when boiling again add the hot milk.

Cream Soups.

Cream soups, made by adding mashed, strained vegetables to a thin white sauce, not only furnish an excellent method of serving milk to children, but also provide an appetizing way to serve vegetables. The flavor of the soups may be varied by using part milk and part stock in which meat has been cooked. The water in which vegetables have been cooked may also be used with the milk.

Cream Vegetable Soup.

2 cups of milk.	$\frac{3}{4}$ cup of mashed vegetables.
1 tablespoonful of butter.	$\frac{1}{4}$ teaspoonful of salt.
1 tablespoonful of flour.	

Mix the butter and flour to a smooth paste and add enough milk to make it of the consistency to pour easily. Scald remaining milk in double boiler, add paste, stirring constantly until mixture thickens. Then add mashed vegetables, mix well, and let cook for thirty minutes, keeping it covered. If soup is too thick, it may be thinned with a little hot milk.

Almost any vegetable may be used to make this soup. Those most useful are asparagus, potatoes, spinach, other greens of various kinds, lettuce, carrots and beans.

EGGS.

Eggs, like milk, are furnished by nature for the development of the young and rank next to milk as the best building food. They are the food of the chick within the shell and contain all the elements for body building and growth.

Food Value of Eggs.

Eggs contain not only one of the best proteins, but vitamines, minerals and an easily digested fat. They are valuable especially for iron and for the fat-soluble vitamine.

Ways to serve Eggs.

Eggs should be served in an easily digested form. If the white of the egg is hard and tough, indigestion may result. It is important also to serve eggs in as many different ways as possible so that the child will not tire of them.

Coddled Eggs.

Put one cup of boiling water into a small hot saucepan and gently lower the egg into the water. Cover and let stand on back of stove, where the heat will neither increase nor diminish, for eight or ten minutes.

Poached Eggs.

Brush over the bottom of an iron frying pan with butter or oil. Then partly fill it with boiling water, adding salt, or a little lemon juice or vinegar. Break the eggs, one at a time, into a cup and slip them very gently into the boiling water. The eggs will lower the temperature of the water, and it should be kept below the boiling point during the cooking. Allow the eggs to remain in the water from four to seven minutes. Remove with a skimmer and arrange carefully on slices of buttered toast.

Scrambled Eggs.

5 eggs.
½ cup of milk.
½ teaspoonful of salt.
1 tablespoonful of butter.

Beat eggs slightly. Add salt and milk. Heat omelet pan and put in butter, being careful that the butter does not scorch. When butter is melted, add egg and stir until of a creamy consistency. Care must be taken not to cook the egg at too high a temperature, nor to overcook it.

Eggs à la Goldenrod.

3 hard cooked eggs.
1 tablespoonful of butter.
1 tablespoonful of flour.
1 cup of milk.
½ teaspoonful of salt.
⅛ teaspoonful of pepper.

Make a thin white sauce with butter, flour and milk, as for cream toast. Separate yolks from whites of eggs. Mince egg whites very finely and add to sauce. Pour sauce over slices of toast and sprinkle with yolk of eggs which has been rubbed through a strainer.

Egg Timbales.

1 tablespoonful of butter.
1 tablespoonful of flour.
$\frac{2}{3}$ cup of milk.
3 eggs.
1 tablespoonful of chopped parsley.
$\frac{1}{2}$ teaspoonful of salt.

Make a white sauce of butter, flour and milk. Add egg yolks beaten until thick and lemon colored. Add seasonings. Beat whites of eggs until stiff and dry and cut and fold them into first mixture. Turn into buttered molds, set in a pan of hot water, and bake in slow oven until firm.

FISH AND MEAT.

When enough milk and eggs are provided for the child, little meat is needed. Meat should not be given in place of milk. When meat is given, not more than 2 or 3 ounces should be served daily, and generally should not be served oftener than once a day.

Food Value of Fish, Meat, etc.

While meat and fish are important sources of body building material, their value is sometimes overestimated. As compared with milk and eggs, they are most expensive and not so easily digested. Milk and eggs are also richer in minerals and vitamines than is meat.

Ways to serve Meat, Fish, etc.

Broiled Meat Cakes.

Chop lean, raw beef very fine. Season with salt, allowing one-half teaspoonful of salt to a pound of beef. Shape into small, flat cakes, and broil in a greased broiler. Spread with butter and serve. In forming cakes, handle as little as possible, for if pressed together the meat will become tough and hard.

Meat Soufflé.

Add one cup of finely chopped, cooked meat to one-half cup hot white sauce. Then add the beaten yolks of two eggs. Remove from fire, cool, cut and fold in the whites of two eggs beaten stiff. Turn into a buttered baking dish, set in a pan of warm water, and bake forty minutes in a moderate oven. Care must be taken to keep the water below boiling point during cooking.

Meat Stews.

2 pounds of beef (or other meat).
4 cups potatoes.
$\frac{2}{3}$ cup carrots cut into small cubes.
1 teaspoonful of very finely chopped parsley.
3 tablespoonfuls of flour, mixed to smooth paste with water.
Salt to taste.

Cut meat into very small pieces and cover with boiling water. Then cook at a temperature below boiling point until meat is very tender. Add vegetables and salt during the last hour of cooking. If desired, the stew may be thickened with flour. If thickening is used, stew must be cooked at least twenty minutes after flour is added.

Note. — Cheaper cuts of beef may be used for the above recipes. Tender cuts may be broiled or roasted, but the tougher cuts must be so cooked that they will be tender and palatable when served.

The following simple recipes for serving fish may be of service in preparing food for the school child: —

Broiled Scrod.

A young cod, split down the back and with bones removed, is called scrod. This may be broiled, spread lightly with butter, sprinkled with salt, and served with baked potato.

Boiled White Fish.

Thoroughly clean a piece of white fish, such as cod or haddock, or a small whole fish may be used. Tie fish in a cheesecloth. Place on a rack in a kettle, with enough boiling salted water to cover. Lower the temperature to simmering point and let cook from one-half to three-quarters of an hour, the time depending on the size of the fish.

Fish is thoroughly cooked when the flesh leaves the bone readily. A little lemon juice or vinegar added to the water in which it is cooked will keep the flesh firm and white. Serve with a white sauce. A lightly beaten egg may be added to the sauce just before serving, if desired.

Creamed Fish.

1¾ cups of cold flaked haddock.
1 cup of white sauce.
Salt.

Mix white sauce with fish and let stand in double boiler until thoroughly heated. Serve on toast or with baked potatoes.

MEAT SUBSTITUTES.

Peas, beans and lentils are vegetables which contain an appreciable amount of protein or building material and may be used in place of meat or eggs. When they are used in the diet in place of meat, fish or eggs, a quart of milk is necessary. The vegetables should be thoroughly cooked, and for young children are best strained and served with milk in the form of soup.

These vegetables supply good body building material if used with milk, but do not supply sufficient building material for growing children when used alone. They are also sources of minerals and the water-soluble vitamine.

CEREALS.

Cereals are valuable foods and should find an important place in the diet of the child. It is wise to serve a cereal at least once a day. Well-cooked cereal and milk make an ideal breakfast dish and can often be served for supper as well. If the same kind of cereal is not given too often, the child will not tire of it. To safeguard against this, and because the different grains vary in the kind and amount of mineral they contain, arrange the diet so as to include during the months cereals from each grain.

Food Value of Cereals.

The cereals and grain products are the chief sources of starch, which is an excellent and cheap source of energy. Those made from whole grains are a valuable source of minerals. Most of the "ready to eat" cereals lack the mineral which is so necessary to growth and health. The cereals contain some protein and fat. The whole grain cereals contain the water-soluble vitamine. The "ready to eat" cereals are lacking in this vitamine. The most nutritious of all cereals are those made from oats. The whole grain cereals, or those which require cooking, are not only the most nourishing but stimulate the action of the intestines and help to prevent constipation.

Do not serve Sugar with Cereals.

It is best not to serve sugar on cereals. When this is done, the sweetened top portion of the cereal is eaten, more sugar added, the top eaten again, and the entire amount not consumed because the appetite has been dulled by the sugar. The child is thus deprived of necessary food material. All starch changes to sugar in the body and cane sugar *per se* is unnecessary for children.

Cereals need Thorough Cooking.

Cereals should be thoroughly cooked to soften the cellulose and develop the flavor. When children do not like cereals it is generally because they have not been well cooked or attractively served.

The amount of water needed in cooking the different kinds of cereals varies according to the kind. Indian meal and finely ground cereals should be mixed with cold water before adding to boiling water to prevent lumping. One teaspoon of salt should be used for each cup of cereal.

All cereals should be cooked directly over the heat for five minutes and stirred constantly during that time. The cooking should be finished over hot water or in a double boiler.

Table for Cooking Cereals.

KIND.	Quantity.	Water.	Time.
Rolled oats	1 cup	1¾ cups	1 hour
Oatmeal, coarse	1 cup	4 cups	3 hours
Steam-cooked rolled wheats	1 cup	1¼ cups	1 hour
Wheatena	1 cup	3¼ cups	1 hour
Cracked wheat	1 cup	4 cups	3 hours
Pettijohn	1 cup	1¼ cups	1 hour
Corn meal	1 cup	3½ cups	3 hours
Hominy	1 cup	4 cups	2 hours
Rice	1 cup	3¼ cups	½ to ¾ hour
Rice, steamed	1 cup	4 cups	1 hour

BREADS.

Breads furnish almost the same kind of nourishment as the cereals. Bread to be given to children should be at least one day old or it should be toasted or dried. Twice-baked breads, such as zweiback or skulpa, are very desirable. These breads demand thorough chewing, which helps to develop the teeth and jaw and mixes the bread with saliva and thus aids in the digestion of the starch.

Do not give Soft, Hot Bread to Children.

Children should not be given soft, hot breads, as they are likely to be swallowed in large lumps, which are difficult to digest. The dark breads made from coarse flours are somewhat laxative and help to prevent constipation, and they are a necessary addition to the diet when fruits cannot be served in abundance. The dark breads contain more iron and other minerals than the white breads.

Methods of serving Dry Bread.

Children who do not relish dry bread are often very fond of croûtons or imperial sticks, and will eat toast if the bread from which it is made is cut in fancy shapes, when they will not take it in an ordinary slice. Bread for toast can be cut in shapes of hearts, boats, birds, etc. The trimmings, of course, should be utilized in puddings.

Croûtons.

Cut bread into small cubes and dry in oven until a golden brown. Croûtons may be cut out with the tiny vegetable cutters used in making fancy salads.

Imperial Sticks.

Cut slices of bread in strips 4 inches long and 1 inch wide. Brush lightly with butter and dry in oven until a golden brown.

Milk Toast.

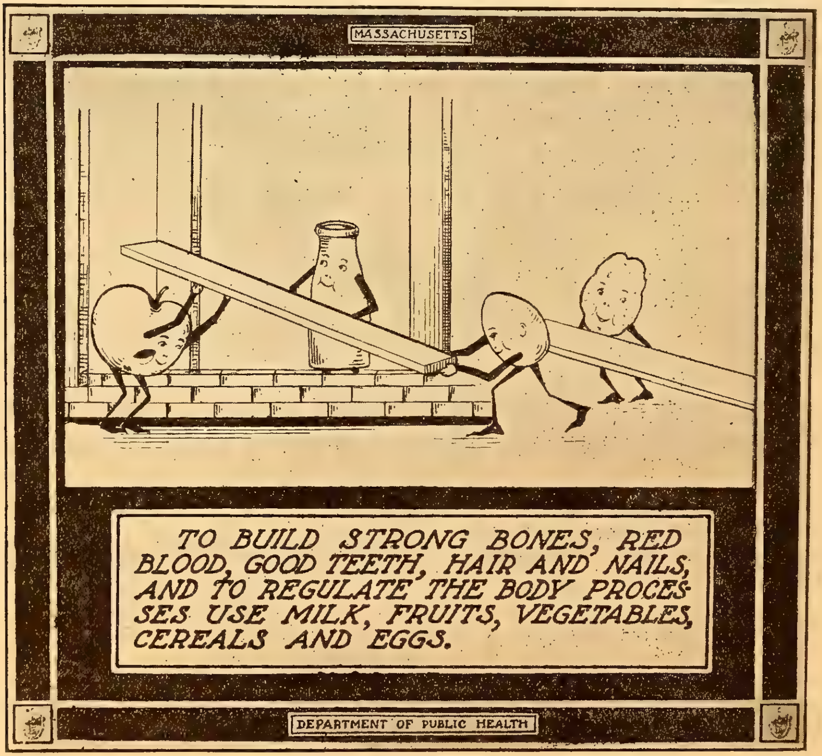
Milk toast and cream toast furnish a means of serving both the bread and the milk, and, if not served too often, are well liked. To make milk toast, pour hot milk, slightly salted, over a slice of hot toasted, or twice-baked bread and serve at once.

Cream Toast.

Make a cream sauce following the recipe for the cream foundation used in the cream soups. Pour this over the hot toast and serve at once.

VEGETABLES.

Vegetables are absolutely essential in the diet of the school child. Very often enough vegetables are not served. Always serve one vegetable besides potato each day. Serve during the week as large a variety of vegetables as possible.


MASSACHUSETTS
TO BUILD STRONG BONES, RED BLOOD, GOOD TEETH, HAIR AND NAILS, AND TO REGULATE THE BODY PROCESSES USE MILK, FRUITS, VEGETABLES, CEREALS AND EGGS.
DEPARTMENT OF PUBLIC HEALTH

Food Value of Vegetables.

Vegetables are particularly valuable for the minerals and vitamines which they contain. The leafy vegetables, such as spinach, lettuce and cabbage, are especially rich in the fat-soluble vitamine and in iron. Spinach is particularly rich in iron, providing more of this substance than any other vegetable.

Most of the common vegetables furnish the water-soluble vitamine. There is a small amount of protein and fat in the leafy vegetables. Potato contains an appreciable amount of starch. Some vegetables, such as beets, carrots and turnips, contain easily digested sugar.

Vegetables give the necessary bulk to the diet, and because they contain a certain amount of indigestible fibrous material help to regulate the bowels.

COOKING OF VEGETABLES.

All vegetables should be thoroughly cleaned. Greens, lettuce and celery should be washed under running water, if possible, leaf by leaf. Vegetables should be cooked only long enough to make them tender and not long enough for them to lose their flavor and become mushy. The simplest methods, such as steaming, baking, boiling and stewing, are the best ways to serve vegetables. They may be served with salt only or with salt and butter, cream or milk.

When vegetables are cooked in water, much of the valuable mineral is dissolved in the water. For this reason this water should not be thrown away but should be used to make soups or sauces. It is generally best when cooking vegetables in water to cook them in a small amount of water and serve the water with them.

Vegetables allowed for Children from Six to Nine Years Old.

Potatoes (baked, boiled or mashed).
Sweet potatoes (baked or boiled).
Spinach.
Beet greens.
Swiss chard.
Lettuce.
Celery (stewed).
Asparagus.
Carrots.
Cabbage (cooked well; must be given cautiously).
Onions (boiled).
Shell beans.
String beans.
Lima beans, young (well mashed).
Beets, young.
Squash.
Summer squash.
Cauliflower.
Tomatoes (stewed).

Vegetables forbidden for Children from Six to Nine Years Old.

Cucumbers.
Corn.
Old beets.
Raw vegetables.
Egg plant.
Radishes.
Salads.

Vegetables allowed for Children over Nine Years Old, in Addition to those allowed from Six to Nine Years.

Raw celery.
Raw onion.
Raw tomato.
Raw cabbage.
Salads.
Corn (sparingly; best scraped from cob).

FRUITS.

Fruits should not be considered a luxury. The school child needs some fruit every day. If fresh fruit cannot be given, dried fruit may be used. In winter canned fruit may be used.

Jams and jellies should be given only at the end of a meal.

When fresh fruit is given, it should be ripe but not decomposed. Bananas should not be given raw to young children but may be served baked. When bananas are given raw, they should be ripe. They are not ripe until the skin becomes dark.

All fruit should be washed before it is eaten.

Food Value of Fruits.

Fruits contain minerals, the water-soluble and antiscorbutic vitamines, considerable easily digested sugar, and valuable acids. Fruits contain cellulose or roughage, which helps to prevent constipation. Very little protein and no fat are supplied by the fruits.

Fruits allowed for Children from Six to Eight Years Old.

Apple, raw.
Apple (baked).
Apple sauce.
Banana, ripe.
Banana (boiled or baked).
Apricots (stewed).
Concord grapes.
Oranges.
Peaches, raw.
Peaches (stewed).
Pears (baked or stewed).
Prunes (stewed).
White grapes.

Fruits allowed for Children Over Eight Years Old, in Addition to those allowed from Six to Eight Years.

Dates.
Figs.
Raisins.
Nearly all fruits may be given.

FATS.

Fat is necessary in the diet of the school child. One or 2 ounces a day will be sufficient.

FOOD VALUE OF FATS.

Fat supplies heat and energy for work and play. It is a flavor food and aids in digestion. The fat from milk and egg yolk supplies the fat-soluble vitamine which is necessary for growth and health.

BEST FATS FOR CHILDREN.

Butter and cream are the most important fats. The egg yolk contains an easily digested fat, and properly cooked bacon is a valuable addition to the diet of the child. Nuts contain a large amount of fat and can be given to the school child if they are finely ground.

If butter substitutes are given to children, plenty of whole milk should be included in the diet.

Fried foods should not be given to school children.

SWEETS.

From 1 to 2 ounces of sugar, or its equivalent, may be given daily to the child. There is more danger of children getting too much rather than too little sugar.

FOOD VALUE OF SWEETS.

Sweets, such as sugar, molasses, syrup, honey, etc., supply material for heat and energy, and are valuable as flavor foods. Molasses contains some iron and is better for children than cane sugar. When sugar is taken in fruits, vegetables and milk, the vitamines and minerals are also supplied and the appetite is not dulled.

THE TIME TO EAT SWEETS.

Sugar or sweets should not be taken in excess and should be taken only at the end of a regular meal. When taken between meals or at the beginning of a meal, the appetite is dulled and enough of the necessary food is not taken; thus, the body is deprived of the food needed for normal growth and health. The result of the eating of excess sweets, which causes a lack of enough necessary food being taken, is shown in the large amount of decay in the teeth of school children. Dr. E. V. McCollom says that poor quality of the teeth runs parallel with other poor physical conditions, and Dr. Percy Howe of Forsyth Dental Infirmary has found this fact to be true also. It is therefore essential to see that the school child does not eat sweets in excess and does not eat them between meals.

The Best Sugars.

Easily digested sugar is found in milk, fruits and vegetables. When cane sugar is given to children, it is best to give it in custards, puddings, simple cookies, cocoa, etc.

It is better for children to spend pennies for fruit instead of candy. When candy is eaten, it should be taken in small amounts at the end of a regular meal.

A great craving for sweets often indicates an insufficient diet or a perverted taste due to wrong food habits.

SIMPLE DESSERTS.

Ways to serve.

Plain Junket.

1 cup of milk (lukewarm).
1 tablespoonful of sugar or caramel syrup.
¼ of a junket tablet.

Dissolve sugar in lukewarm milk (never warmer), add junket tablet previously dissolved in a tablespoonful of cold water. Add a drop of vanilla. Stir a few times and set aside in a warm place to solidify. When it has set, place it in a refrigerator to chill. Care must be taken not to shake the junket while it is solidifying.

Soft Custard.

2 cups of milk.
2 eggs.
6 tablespoonfuls of sugar or syrup.
½ teaspoonful of salt.

Scald milk, add salt and sugar, and stir until dissolved. Beat eggs until very thick and smooth. Slowly pour the boiling milk on the eggs, stirring all the time. Pour the mixture into a double boiler, set over the fire and stir for ten minutes. As soon as the mixture thickens, remove from the fire, pour into a dish and set away to cool. Just before serving, add flavoring.

Baked Custard.

Proceed as in boiled custard, but instead of pouring into a double boiler, pour into a baking dish. Set the dish into a pan of water, place in the oven and bake until the mixture is set in the middle. Be sure to keep temperature of water below the boiling point during the cooking.

Farinaceous Custards.

Make like boiled custard, using one egg less, and adding one-fourth cup of farina, tapioca, cornstarch, arrowroot or cooked rice to the hot milk and egg.

Note. — Sago should be soaked over night before using. Tapioca should be soaked one hour before using.

Chocolate Custard.

Add one square of grated chocolate to the milk, and proceed as for baked custard.

Caramel Custard.

Melt the dry sugar until golden brown, add to hot milk and, when dissolved, proceed as in boiled custard. It may be finished either as boiled or baked custard.

Apple Tapioca.

¾ cup of minute tapioca.
2½ cups of boiling water.
½ teaspoonful of salt.
6 tart apples.
½ cup of sugar or syrup.

Cook the tapioca in salt water until it becomes transparent. Core and pare the apples and place in the bottom of the baking dish. Fill the cavities with sugar and add a little lemon peel. Pour the tapioca over the apples and bake in a moderate oven until the apples are soft. Serve, with sugar and cream, either cold or warm.

Lemon Jelly.

2 tablespoonfuls of gelatine.
½ cup of lemon juice.
½ cup of cold water.
2½ cups of boiling water.
1 cup of sugar or syrup.

Soak gelatine in cold water for twenty minutes. Add boiling water and sugar and stir until it dissolves. Add the lemon juice and strain into a mold. Set away to harden. When it is stiff, loosen from the sides of mold, turn onto a plate, and serve with cream or soft custard.

Snow Pudding.

1 tablespoonful of granulated gelatine.
½ cup of cold water.
1 cup of boiling water.
1 cup of sugar or syrup.
¼ cup of lemon juice.
Whites of 3 eggs.

Mix as for lemon jelly. Set aside in a cool place. As soon as it becomes syrupy, stir occasionally until quite thick. Then beat with wire spoon or whisk until frothy. Fold in beaten egg whites and continue to beat lightly until quite stiff. Pile by spoonfuls on a plate and serve with boiled custard.

Milk Sherbet.

4 cups of milk.
1½ cups of sugar.
Juice of 3 lemons.

Mix juice and sugar, stirring constantly while slowly adding milk. If the mixture should curdle, this will disappear when frozen.

Brown Betty.

Buttered crumbs.
Tart cooking apples.
Sugar.
Cinnamon (very little).
A little water.

Put a layer of buttered crumbs into a baking dish. Pare and slice tart cooking apples and put a layer into the dish. Sprinkle with sugar, cinnamon and a little water. Add a layer of crumbs and repeat with apples and flavoring. Cover the top with a layer of crumbs. Bake in a moderate oven until apples are cooked and the crumbs browned. Any fruit, such as peaches or blueberries, may be used instead of apples. Serve hot or cold, with cream and sugar.

Cornstarch Blanc Mange.

4 tablespoonfuls of cornstarch.
2 tablespoonfuls of sugar or syrup.
½ cup of cold milk.
1½ cups of hot milk.
½ teaspoonful of salt.
1 teaspoonful of vanilla.

Mix cornstarch, sugar and cold milk, and when smooth add hot milk and salt. Cook directly over fire, stirring constantly until mixture boils, then cook in double boiler for one-half hour. Add vanilla, pour into molds moistened with cold water, and set aside to cool. When ready to serve, unmold, and serve plain or with cream or fruit juice.

Prune Soufflé.

Whites of 3 eggs.
½ cup of prune pulp.
¼ cup of sugar.

Beat whites of eggs until stiff, cut and fold in prune pulp and sugar. Beat until very light and fluffy. Pour into a buttered baking dish and bake in slow oven until firm. It may be served without baking, with custard sauce.

Note. — Any fruit pulp may be used in place of prune pulp.

Cereal Puddings.

2 cups of milk.
3 tablespoonfuls of cereal, such as rice, corn meal, oatmeal, etc.
3 tablespoonfuls of syrup or molasses.
⅛ teaspoonful of salt.
1 tablespoonful of prune pulp.

Cook in double boiler for one hour. Prune may be omitted. It may be baked in a slow oven instead of being cooked in a double boiler.

Stewed Prunes.

Wash prunes well, cover with cold water, and soak over night. In the morning put them to cook in water in which they were soaked, cooking very slowly, below the boiling point, until soft. The long, slow cooking retains all the sugar that the fruit originally possessed and makes additional sweetening unnecessary.

Baked Apples.

Wipe and core sour apples. Place in a baking dish and fill centers with sugar and cinnamon, allowing one-half cup of sugar and one-fourth teaspoon of cinnamon to eight apples. Cover bottom of dish with boiling water and bake in hot oven until soft, basting often with syrup in dish. Serve hot or cold, with or without cream.

Baked Apples with Oatmeal.

Core apples, fill cavity with cold oatmeal. Place in baking dish, sprinkle with sugar, and add one-half cup of water. Bake in a moderate oven until soft. Serve with cream.

Indian Pudding with Apples.

1 quart of sweet milk.
½ cup of corn meal.
½ teaspoonful of salt.
2 teaspoonfuls of molasses.
1 cup of sweet apples pared, cored, quartered.

Pour into a deep pudding dish and bake four hours. When pudding has baked for one and one-half hours, add, without stirring, 1 cup of cold milk. Serve with cream and sugar or syrup.

Apple Sauce.

Wipe, pare, core and quarter eight sour apples. Put in a saucepan, sprinkle with sugar, and add enough water to prevent apples from burning. Cook to a mush, stirring occasionally.

TEA AND COFFEE.

Tea and coffee should not be given to a child, at least not until after the child is sixteen years old, and better not then. They have no food value and act only as a stimulant and filler.

NEED OF REGULAR MEALS.

It is necessary that the meals be given at regular hours and that plenty of time be allowed for them.

The child should be required to chew his food thoroughly and to eat slowly.

Breakfast.

No child should be allowed to go without breakfast.

A good breakfast consists of cooked cereal and milk, dark hard bread and butter, and if possible some fruit.

Between Meals.

If the child eats well at mealtime there is no reason why he should not have a simple lunch in the midmorning or midafternoon.

Children should not eat candy or sweets between meals but may have a limited amount at the end of a regular meal. If sweets are eaten between meals the appetite is dulled so that enough of necessary food is not taken at mealtime.

The best between meal luncheon is a glass of milk or a slice of dark bread and butter.

Midmorning Luncheon of Milk in School.

The midmorning luncheon of milk in the schools has proved its worth in the increased health and efficiency of the school children. Most children are greatly benefited by the extra cup of milk.

MASSACHUSETTS
BE HAPPY WHILE YOU EAT—
EAT REGULARLY AND SLOWLY;
CHEW THOROUGHLY.
DEPARTMENT OF PUBLIC HEALTH.

The midmorning luncheon of milk could well be made a part of every school program.

Hot Luncheon at Noon.

It is necessary for the health of the school child for him to have a hot luncheon at noon. If he is able to go home to his luncheon, sufficient time should be allowed for him to go home, eat a luncheon slowly, and return without undue hurry. The child who rushes home at noon, eats hastily, and hurries back to school cannot digest his food well nor do good school work.

Provision should be made at school to supply some hot dish at noon for the child who lives too far and must bring his luncheon from home. (For further information see bulletin entitled "The School Lunch," issued by the Massachusetts Department of Public Health.)

A Simple Supper is Best for the School Child.

In order to insure a restful night for the child, see that his supper is one that may be easily digested.

A restless night and lack of appetite for breakfast can often be traced to the wrong kind of a supper.

Good Cheer promotes Good Digestion.

Cultivate the habit of making the mealtime a happy time. Good cheer promotes good digestion.

The School Child's Needs.

The school child needs plenty of good wholesome food every day, at regular times, and to be taught right food habits.

The school child needs to chew his food thoroughly, to eat slowly and to be happy while he eats.

The school child needs plenty of time every day to play in the fresh air; also, long hours of sleep with the windows open.

The school child needs to be weighed once a month, and if he is 10 per cent or more underweight, every effort should be made to find out the cause and to bring the child back to normal physical condition.

Are there scales in your child's school? Does your child bring home a report card monthly giving his weight?

Suggestive Food Plan for a Child from Six to Twelve Years.

Breakfast.

I. Fruit (fresh, stewed or baked).
II. Cereal with milk (well-cooked whole grain).
III. Buttered dry toast or stale bread (bread made from whole grain flours best).
IV. Milk or plain cocoa.

Dinner.

I. Egg, simply prepared, or small portion of meat or fish simply cooked.
II. Potato (mashed or baked).
III. Some other vegetable (a fresh one as often as possible).
IV. Glass of milk.
V. One or two slices of bread and butter (dry or hard bread made from whole grain flour is best).
VI. Simple dessert (fruit or simple pudding).

Supper.

I. Creamed soup, or
Milk toast, or
Boiled rice and milk (use natural crown rice), or
Cooked cereal and milk (serve a different kind than that served for breakfast), or
Baked potato with milk to drink.
II. Dark bread and butter.
III. Simple dessert, such as nutritious pudding, cooked fruit with simple cake or cookies.

Suggestive Plan for School Lunch Box.

I. Simple sandwiches.
II. Fruit.
III. A simple sweet (plain cookies, sponge cake, custard, dried fruits).
IV. Drink (milk, or fruit juices in summer, hot cocoa in winter).

For further information, see School Lunch Bulletin, issued by the State Department of Public Health.

THE COMMONHEALTH.

Bimonthly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

The New England Public Health Institute. — The old catch phrase, "A pleasant and profitable time was had by all parties," well describes the feeling of all who attended the New England Public Health Institute held at Hartford, Conn., the first week in May. Those who went were asked to go as students and they rose to the occasion. Notebooks were in evidence everywhere and intelligent discussion was the rule rather than the exception. The instructors from all over New England, from New York City, Washington, D. C., and Baltimore seemed to feel that the audience was well worth their best efforts.

The schedule of courses included twelve subjects: Health Administration, Preventable Diseases, Sanitation, Tuberculosis, Venereal Disease, Child Hygiene, Public Health Nursing, Social Work, Mental Hygiene, Industrial Hygiene, Foods and Food Control and Nutrition. There were about nine exercises a day in these sections. In the rare instance when an instructor was unable to appear, a round table was carried on to discuss the scheduled subject.

From an administrative point of view everything went off with the utmost smoothness. The advisory committee and the faculty had their part in this result, but the real credit for the success of the Institute belongs to its director, Dr. John T. Black, health commissioner of Connecticut.

At a meeting of the advisory board and program committee it was decided that the Institute should be an annual affair and that Dr. Kelley, Commissioner of Public Health of Massachusetts, be asked to direct the session of 1923 which is to be held in Massachusetts.

It behooves every health worker of Massachusetts, therefore, to begin at once to do his or her share to make the forthcoming Institute a success. It goes without saying that the co-operation of all will be needed if the high standard set by Connecticut is to be maintained.

"The Lion and the Nurse." — The new play, "The Lion and the Nurse," written for the Division of Hygiene, is now available for any one in the State who wishes to use it. It is better adapted to adults than to children, although children can enjoy it also. The principal lesson taught is the value of school nursing. Incidentally, health habits are presented in an attractive manner.

School Hygiene Conferences. — Reference was made in the last issue of "The Commonhealth" to a plan which has been worked out by the State Departments of Education and Public Health whereby conferences on school hygiene are being held at the various normal schools of the State. These conferences are intended primarily for school nurses, but are also participated in by school physicians, superintendents, teachers, physical instructors and members of school committees.

The attendance has been most gratifying, in two instances being between sixty and seventy. A still greater attendance is desired, however. It is hoped that school committees and boards of health will require attendance on the part of their nurses, since all can learn something from a free interchange of ideas, and since nurses sharing in such conferences are worth more to their communities.

The usual program for these conferences follows, with the names of those who have participated at the different centers: —

PROGRAM OF CONFERENCES ON SCHOOL HYGIENE UNDER JOINT AUSPICES OF STATE DEPARTMENT OF EDUCATION AND STATE DEPARTMENT OF PUBLIC HEALTH.

Morning Session.

Mr. Burr Jones, Supervisor, Elementary Education, State Department of Education, presiding.

9.15– 9.30 Remarks by District Health Officer, State Department of Public Health. (Dr. French at North Adams; Dr. Miner at Westfield; Dr. Dudley at Worcester.)
9.30–10.15 "School Hygiene." Dr. Merrill Champion, Director, Division of Hygiene, State Department of Public Health.
10.15–11.00 "What should be expected of the School Physician and the School Nurse?" Dr. Fredrika Moore, Pediatrician, State Department of Public Health.

11.00–11.30 "What should be expected of the Teacher?" Mr. Burr Jones, Supervisor, Elementary Education, State Department of Education.

11.30–12.15 "Place of Physical Education in the School Health Program." Mr. Carl Schrader, Supervisor of Physical Education, State Department of Education, or Miss French, Assistant Supervisor of Physical Education.

12.15– 1.15 Lunch.

Afternoon Session.

Nursing Assistant to the District Health Officer, State Department of Public Health, presiding. (Mrs. Chace at Hyannis; Miss Turner at North Adams; Miss Ayer at Westfield; Mrs. Hartnett at Worcester.)

1.15– 2.30 Play: "The Lion and the Nurse."

2.30– 3.00 "The Rural School Nurse." Discussed by Miss Mary Williams at Hyannis, Miss Greta Mabry at North Adams, Miss Mary Ayer at Westfield, and Miss Willarette Sears at Worcester.

3.00– 5.00 "Question Box." Dr. Merrill Champion, Director, Division of Hygiene, State Department of Public Health.

HEALTH BOOKS FOR THE HOME.

The following list of books was compiled by the Public Health Committee of the Boston Section of the Council of Jewish Women, and is intended as a suggestion for a nucleus of a library for the women in the home, on matters pertaining particularly to the health of the family.

Title.	Author.	Publisher and Date.	Price and Pages.	Summary.
The Prospective Mother.	Slemons, J. M. .	D. Appleton & Co., New York, 1921, 15th printing.	225 pp., $2.00	A practical handbook on prenatal care and confinement; reliable and useful.
The Baby's First Two Years.	Smith, Richard M.	Houghton Mifflin Company, Boston and New York, 1920, 9th edition.	131 pp., $1.00	Gives standard rules for the care and feeding of infants, with helpful suggestions, and useful recipes and charts.
The Care and Feeding of Children.	Holt, Emmet L.	D. Appleton & Co., New York, 1918, 9th edition.	215 pp., $1.00	A standard work most useful to nurse or mother in her daily care of a baby. Written in the form of questions and answers.
Your Child To-day and To-morrow.	Gruenberg, Mrs. S. M.	J. B. Lippincott Company, Philadelphia, 1913.	250 pp., $1.50	An informal practical discussion of the problems of childhood and how the mother can meet them. Shows an understanding of a child's psychology without advocating any particular psychological theories. Interesting chapters on work and play, punishment, adolescence, etc.
Play Life in the First Eight Years.	Palmer, L. A. .	Ginn & Co., Boston, 1916, editor, S. T. Stewart.	270 pp., $1.40	Play life adaptable to home, school, playground, kindergarten, settlement or church.
Play in Education .	Lee, Joseph .	The Macmillan Company, New York, 1915.	494 pp., $1.80	An interpretation of the child to the adult through a discussion of the function of play in child life. Emphasis on typical play for different ages and possibilities of developing character and knowledge through the medium of play.
The Hygiene of the Child.	Terman, L. M. .	Houghton Mifflin Company, Boston, 1921, 12th edition.	407 pp., $2.25	Contains what every careful parent wants to know about the physical and mental growth of the child, — the causes and remedies of various defects.

TITLE.	Author.	Publisher and Date.	Price and Pages.	Summary.
The Posture of School Children.	Bancroft, Jessie .	The Macmillan Company, New York, 1913.	322 pp., $1.60	Standard work on proper carriage of the body, with helpful suggestions to assist in correcting poor posture, especially in the growing child.
Towards Racial Health	March, N. H. .	E. P. Dutton & Co., New York, 1919, 1st American edition.	311 pp., $2.50	A handbook on the training of boys and girls, parents, teachers and social workers. Discusses sex training of children in its mental, emotional and physical aspects. Chapters on the use of nature study and on the biology of sex.
Successful Family Life on the Moderate Income.	Abel, Mary H. .	J. B. Lippincott Company, Philadelphia, 1921.	247 pp., $2.00	A broad-minded study on the fine art of living. A discussion of family life as an enterprise in all its relations from income and finance to the satisfaction and pleasures of life.
Spending the Family Income.	Donham, S. Agnes.	Little, Brown & Co., Boston, 1921.	174 pp., $1.75	Conscious standards for saving, — for needs, for giving, for play, for growth, for health. The author shows clearly how this can be effected by a carefully planned budget so that the income spent for real values makes possible "the durable satisfaction of life."
Feeding the Family .	Rose, Mary S. .	The Macmillan Company, New York, 1920, 2d edition.	449 pp., $2.10	Excellent source of reliable information concerning the significance of food and the needs of adults and children during different age periods. Methods and tables for planning meals on the basis of calories.
The American Home Diet.	McCollom, E. V., and Simmonds, E.	F. C. Matthews Company, Detroit, 1916.	237 pp., $3.50	Latest information regarding diet which will maintain normal growth of children and preserve the vigor of the family, with popular summary of the author's theories in regard to protective foods — vitamines; 365 menus and many recipes.

TITLE.	Author.	Publisher and Date.	Price and Pages.	Summary.
Clothing, — Choice, Care, Cost.	Woolman, Mary S.	J. B. Lippincott Company, Philadelphia, 1920, new edition.	259 pp., $2.00	Types and history of clothing, selections, materials, thrift, care, accessories, with clothing and health discussed in chapter VII and special reference to clothing for children, pages 157 to 161.
House Sanitation .	Talbot, Marion .	Whitcomb & Barrows, Boston, 1919.	116 pp., $0.80	A compact guide for maintaining a healthful shelter for the family, discussing plumbing, heating, lighting, ventilating, furnishing, household control of infection; bibliography.
Health and Disease .	Lee, Roger I. .	Little, Brown & Co., 1921.	357 pp., $2.50	A readable and comprehensive discussion of the different factors in the community and in the home making for health or disease.
American Red Cross Textbook on Home Hygiene and Care of the Sick.	Delano, Jane F., and Strong, A. H.	Blackiston's Son & Co., Philadelphia, 1918.	334 pp., paper, $0.70; cloth, $1.25	Elementary textbook with definitions and explanations of simple scientific terms, discussing bacteria, their relation to health and disease, transmission, sanitation, care of the house in health and sickness, personal hygiene and care of the patient at home.
What Men Live By .	Cabot, Richard C.	Houghton Mifflin Company, Boston and New York, 1st edition, 25th printing.	341 pp., $2.50	A philosophy of healthy living and an exposition of the author's creed of the interplay of "work, play, love and worship" as the essentials that make for real life.
Home and Community Hygiene.	Broadhurst, J. .	J. B. Lippincott Company, Philadelphia, 1918.	428 pp., $2.00	A popular comprehensive statement of the things every individual wants to know in order to become an intelligent citizen. Chapters on personal health, care of the home, summer camps, infant welfare, industrial, occupational and mental hygiene, health education and general community problems.

TITLE.	Author.	Publisher and Date.	Price and Pages.	Summary.
Immigrant Health and the Community.	Davis, Michael M., Jr.	Harper & Brothers, 1921.	479 pp., $2.50	An authoritative study presenting a complete survey of the health of the immigrant. A discussion of a program so unified as to safeguard the health of the older resident and of the newcomers in American life.
Preventive Medicine and Hygiene.	Rosenau, Milton J.	D. Appleton & Co., New York, 4th edition, 1921.	1,567 pp., $10.00	This pioneer and unique volume brings together widely scattered material, treats of the modern progress in hygiene and sanitation upon which preventive disease and maintenance of health must rest, and gives due consideration to the economic and social difficulties of the problem.
The Life of Pasteur .	Vallory - Radot, R.	Doubleday, Page & Co., New York, 1919.	464 pp., $3.00	A fascinating romance. "A biography showing what science has done and may do for humanity." (William Osler.)

RADIO HEALTH TALK.

The Metropolitan Chapter of the American Red Cross has been sending out an interesting series of health talks through the Medford Hillside Station. To give our readers an idea of this service, a sample talk is appended.

RADIO HEALTH TALK NO. 17, MAY 2, 1922.

The Boston Red Cross Health Service speaking. Our talk to-night is on an ancient danger to health and life, which we are allowing to creep upon us again. The statements which we shall make have been O. K'd by professional advisers of the Red Cross Health Service, 73 Newbury Street, Boston. Note our new address, 73 Newbury Street. This is Health Talk No. 17.

Vaccination.

Among the mysteries and the unsolved problems of medical science there are, thank heaven, a few certainties, — certainties which are absolute and which work for our good. We know, and we need not be squeamish about saying that we know, that quinine is an antidote for malaria, or that Pasteur's vaccine against rabies prevents hydrophobia and even cures it in its early stages. With equal certainty we know that vaccination is a strong defence, and our only defence, against the devastating disease of smallpox.

We have only to glance back to see the horrors from which vaccination has saved us. Through the middle ages and into modern times smallpox not only swept across Europe in terrific epidemics, but it was so constantly present that men literally had not half a chance to escape it. In London in the eighteenth century, adults without pockmarks were far to seek. In Boston, Mass., in 1701, people died from smallpox at the rate of 43 in 1,000; and in 1721 the rate rose to 77. In other words, smallpox in that year killed five times as many people per thousand as all our diseases and accidents combined. And it did not stop at killing people; it left its victims disfigured and many of them blind. Nowadays blindness from smallpox is unknown in Massachusetts; before 1900 the smallpox death rate had fallen below 1 in 100,000; and as for epidemics of the disease, most of us imagine that nothing can ever bring them back.

What has wiped out this terror of the past? What has wrought a change which, to our ancestors, would have seemed miraculous? One thing and one thing only, vaccination. And this is how it came about.

Back in the eighteenth century, dairymen, infected from sores on the udders of their cows, noticed that they had nothing to fear from smallpox; they passed through epidemics unscathed. From experience to experiment was but a step. In 1796 Dr. Edward Jenner developed the earliest method of vaccination. In 1800 Dr. Benjamin Waterhouse of Boston infected his children with the virus of "cowpox," a mild disease but analogous to smallpox. Then, fearlessly, though to the horror of the skeptics, he sent these children of his into the smallpox pesthouse. There they stayed, and but for their vaccination would infallibly have caught the disease, and very likely died. They neither caught it nor died; like the dairymen, they came out as they went in, unscarred and unscathed.

From that day to this, there has been progress in technique. Then, vaccination carried with it that risk of infection with one or another human disease. Nowadays, vaccine can be manufactured in the United States only under a rigid system of government control. In Massachusetts, we go a step further. The Commonwealth manufactures its own vaccine in its own special laboratories, and distributes the vaccine in sealed tubes to the physicians using it. Infections, except those sometimes caused by patients scratching their own vaccination marks, are unknown in this State. Our vaccines are not only efficient, but absolutely pure.

Without law and good administration of laws vaccine could not have eliminated smallpox. From 1800 to 1837, when vaccination was compulsory, the smallpox death rate in Boston came down to 3 in 100,000. In the next eighteen years the rules were relaxed, and the death rate rose to 46. Then came sixteen years with good laws badly administered, and an average smallpox death rate of 52. That was too much. Massachusetts created its State Board of Health, the laws were enforced, and the next twenty-eight years, up to 1900, the rate fell to less than 1.

There are folks who will tell you that vaccination had nothing to do with it. Smallpox, according to them, died out of itself. It is a queer coincidence that when vaccination went out of fashion the deaths were multiplied seventeen times; that with careless law enforcement they went still higher; and that with thorough vaccination the deaths were cut down, and, for twenty-eight years, were kept down to one-fiftieth of what they had been in the bad old days. Is all this mere, queer coincidence? People like you, who are listening in, progressive people familiar with scientific progress, hardly need to be told that it is not. The general public has grown careless. And if half the men at Harvard, for instance, have never been vaccinated, it is not, perhaps, surprising. Two generations of immunity have made us forget.

But if we forget, smallpox remembers; it lies in wait, it creeps ahead at every opportunity. Here in Massachusetts our carelessness has more than doubled the smallpox death rate in the last twenty years. In 1917 local outbreaks occurred in Worcester, Fitchburg, Shrewsbury and Webster; and in 1915 at New Bedford there were 23 cases, of whom 10 died. That is not many, but does any one of us want to join them?

We in the eastern States can still thank God that we are not as other men are. In six of the central States, where they are more careless, the rate has been going up for the last five years. Now, they have forty-three times as many cases as we. But travel is free and frequent between the States. If we wish to avoid contagion, it is up to us to take care. Vacation time is coming, when many of us go to States and countries where vaccination is not enforced; and when many people come from those States and countries to Massachusetts. Now is the time to take care.

One small vaccination scar means seven to ten years immunity from one of the great scourges of mankind. Only vaccination can bring this immunity. People going away from home should be sure that they have it. All school children should have it. Their safety depends on vaccination. The law requires vaccination. See to it that the law is upheld.

Boston Red Cross Health Service signing off. Good-by. Good-by.

PRIZE ESSAY ON ORAL HYGIENE.

The Massachusetts Dental Hygiene Council annually offers a prize of $25 for the best essay on "Oral Hygiene" written by any student at Tufts College Dental School, Harvard Dental School or the Forsyth-Tufts Training School for Dental Hygienists. The essay to which the prize was awarded by the Dental Hygiene Council follows: —

ORAL HYGIENE.

BY H. E. DANOFSKY, TUFTS, 1922.

In oral hygiene we are concerned with the individual as a whole. In the past there has been a tendency to regard the teeth and the adjacent structures as isolated parts of the organism, having no definite relationship to the rest of the body. We cannot evade the fact, however, that the teeth and the surrounding and supporting structures have a definite integral and inseparable relationship to the living organism as a whole, both from a physiological and a pathological standpoint.

The masticatory apparatus, composed of muscular, vascular, nervous and osseous tissues, is a living part of a living thing, and these tissues blend and intermingle with one another and are controlled in their mutual relations by the more dominant influences involving the entire organism, such as the endocrin bodies, enzymes, hormones, etc.

The dental arch is the result of a complex of forces such as heredity and environment, under which may be listed the possibilities of variations, imitations, habits, adaptations and nutritional questions. All these factors must be given due consideration, for they are of practical utility in the eradication and correction of deformities in the masticatory structures. In short, we must consider the phenomena incidental to the normal growth and development from a biological standpoint.

Let us note that the evolutionary trend of our times is not towards the perfection of the dental arch but its degeneration, for the higher the civilization the greater the ravages of decay. Perhaps the changed conditions of living have caused some organs to become less essential to life, hence degeneration; or, perhaps, in accordance with the law of economy and growth the brain, the center of activity, draws from the surrounding structures in its growth, causing the jaw to become predisposed to variations.

The whole dental arch normally grows and develops in anticipation of the function of mastication which molds it. The intended function of the teeth and the supporting tissues primarily is the mastication of food, which, if adhered to, aids in the normal development, for among the causes of malocclusion and other dental diseases must be considered the dependence of the oral morphology on the function. Few teeth receive sufficient exercise, for our food reaches us in a predigested and pretriturated form, and the vital forces of the teeth, which should be stimulated and stirred to life and activity, are quiescent, the tone of the natural barriers of the dental organs against disease is lowered, and predisposing factors terminating in degeneration and mutilation of the dental structures are established.

Perturbation of the normal functioning masticatory structures is responsible for the breaking down of the natural defences, giving rise to malformations and causing a susceptibility to decay and other oral manifestations, furnishing a foothold to oral sepsis and its far-reaching dangers, which are not always evident. Occasionally they may be latent, chronic, slow-acting and obscure, but most dangerous.

There is a definite relationship or correlation between the effect of systemic diseases on oral tissues and the effect of oral sepsis on systemic conditions, as is noted when in uric acid diathesis pericementitis or gingivitis occurs, and, conversely, when an alveolar abscess acting as a primary focus gives rise to a secondary disorder, such as endocarditis or arthritis.

All pathological conditions of the vital structures of the tooth, or all successive changes terminating in the formation of alveolar abscesses, are almost constantly due to infection through the inroad of caries. This is the most prevalent disease of modern civilization, and, like most diseases, is not the effect of any single cause, but is the resultant of several causes. The nature and progress of this disease is profoundly modified by a large variety of factors, such as the character and number of organisms normally present in the oral flora, the variety and amount of carbohydrates, the diastatic action of saliva, the resistance of the enamel surface, the shape and development of the jaws, the disposition of the teeth, retentional foci of food materials, and nutritional factors.

Food débris, which very easily collects under the free margin of the gum tissue, often in the process of mastication becomes forced through the junction of the tooth and the gum, whereupon infection and suppuration take place, giving rise to pyorrhea alveolaris, a suppurative process occurring around the joint of tooth and jawbone. This disease as yet has not been attributed to any single micro-organism, for most of the organisms of the oral cavity have been demonstrated to be present in the lesions of this disease. The infection rapidly spreads along the alveolo-dental periosteum, forming small pockets of pus. The bone and socket, being opened to infection through the destruction of the alveolo-dental periosteum, are next attacked by a rarifying osteitis; thus inflammation and destruction of the alveolar bone continues until the joint becomes totally disorganized, whereupon the tooth becomes loosened and easily dislodged. During the progress of infection pus is being continually formed and discharged into the mouth, constituting a very potent source of oral sepsis, frequently overlooked because it is painless. Occasionally pyorrhea, like other primary infections, originates some grave secondary systemic disorder, as a toxemia, a pyemia or a septicemia.

Alveolar abscesses, of all chronic infections, are most common, and if not treated are a persistent source of oral sepsis, the septic products being partly absorbed by the lymphatics and in some cases discharged into the mouth through fistulous openings. Infection takes place either through the root canal of the tooth or as a sequela following destruction of the alveolar process by pyorrhea. This infection more than any other is overlooked because it shows no visible manifestation, and is only located by means of the X-ray after it has committed some serious secondary offence.

As a rule an apical infection develops slowly and individually, causing no symptoms by which its presence might be detected.

The importance of oral sepsis as a source of metastatic infection, including the various forms of tonsillitis, stomatitis and sinusitis, surely is not trivial, for these areas of infection have been conclusively demonstrated to be the causative factors giving rise to such diseases as diabetes, gastrointestinal diseases, heart lesions of the various types, hypochondria, neuritis, goiter, arthritis, nephritis, etc. It should also be borne in mind that these infections have an untoward influence on the course of other unrelated diseases with which the individual may be affected, due to the general lowering of resistance.

The problem confronting the oral hygienist includes the eradication of the various types of oral inflammatory and septic conditions, such as gingivitis.

stomatitis, and other disorders so common to the mouth, the greatest atrium of infection. The crux of the problem of hygiene means the maintenance of a proper functioning masticatory apparatus best suited to the needs of the individual organism. If we are to transmute this possibility into a fact, the variety of factors both normal and pathological to which the dental structures are subjected during the period of growth and development must be given ample consideration. The possibilities of normal variation, the dependency of form on function, the effect of extraction and mutilation upon the tooth series, the improper care of the deciduous teeth, the pernicious influences of habit upon the structures, from an oral standpoint, the effect of internal secretions on the jaws, the effects of oral asepsis, the perversion of osseous development through so-called nutritional diseases, as rachitis, scorbutus, etc., and the effects of chronic irritation giving rise to mouth malignancy, — these are some of the possibilities which must be considered in a scientific view of oral hygiene.

AN OPINION OF THE ATTORNEY-GENERAL.

Hon. James M. Hunnewell, *Clerk, Committee on Public Health.*

Dear Sir: — I beg to acknowledge receipt of your communication wherein you request my opinion upon the following questions: —

1. Has the Massachusetts Department of Public Health, under the provisions of chapter 303 of the Acts of 1921, the power to revoke for cause any license issued, under the provisions of the act, by a local board of health?
2. Has the Massachusetts Department of Public Health any power under the act to grant licenses to places properly constructed and maintained if a local board of health refuses or neglects to do so?
3. Has the Massachusetts Department of Public Health any duties to perform under the provisions of the act other than making regulations?
4. Has the Massachusetts Department of Public Health the right and power to enforce its rules and regulations?
5. Has the Massachusetts Department of Public Health any authority under any other statute to order local boards of health to enforce any of the provisions of the act should such boards be negligent in such duties?

St. 1921, c. 303, provides as follows: —

Chapter ninety-four of the General Laws is hereby amended by inserting after section ten and under the heading, Non-Alcoholic Beverages, the five following sections: — *Section 10A.* Boards of health of cities and towns may annually grant permits to engage in the business of the manufacture or bottling of carbonated non-alcoholic beverages, soda waters, mineral or spring waters and may fix fees for said permits not to exceed ten dollars. The provisions of this section and the following four sections shall not apply to persons registered under sections thirty-seven to forty, inclusive, of chapter one hundred and twelve. *Section 10B.* The board of health shall, from time to time, examine the premises of any person granted a permit under the preceding section, and if such premises or the equipment used therein in connection with the business of such person is found to be in an unsanitary condition, the board may revoke such permit after a hearing, ten days' notice of which shall be given such person. *Section 10C.* All materials used in the manufacture of beverages specified in section ten A shall be stored, handled, transported and kept in such a manner as to protect them from spoilage, contamination and unwholesomeness. No ingredient or material, including water, shall be used in the manufacture or bottling of any such beverage which is spoiled or contaminated, or which may render the product unwholesome, unfit for food, or injurious to health. Persons granted permits under section ten A, shall comply with sections one hundred and eighty-six to one hundred and ninety-six, inclusive. *Section 10D.* The department of public health and local boards of health may make rules and regulations to carry out the three preceding sections. *Section 10E.* Any person who engages in the business of the manufacture or bottling of carbonated non-alcoholic beverages, soda waters, mineral or spring waters without the permit provided for in section ten A or who violates any provision of sections ten A to ten D, inclusive, or of any rule or regulation made thereunder, shall be punished for a first offence by a fine of not more than one hundred dollars and for a subsequent offence by a fine of not more than five hundred dollars.

1. The subject-matter of this act pertains to non-alcoholic beverages and requires a permit for the business of the manufacture or bottling thereof. The power to grant such permit and also to fix the fee therefor (not to exceed $10) is expressly vested in boards of health of cities and towns. So also the power to revoke such a permit is vested solely in such local boards of health for the cause stated in the act.

While it is required that persons granted such permits shall comply with sections 186 to 196, inclusive, of General Laws, chapter 94, there is nothing therein or in said chapter 303 which gives the Department of Public Health the power to revoke any license issued by a local board of health under the provisions of said chapter. I accordingly answer your first question in the negative.

2. Inasmuch as St. 1921, c. 303, expressly vests the licensing power in the boards of health of cities and towns, the Massachusetts Department of Public Health has no power to grant such licenses "even if a local board of health refuses or neglects to do so." The Legislature has expressly vested the entire discretion in this matter in such local boards, and the Massachusetts Department of Public Health, in my opinion, would have no right to substitute its own discretion therefor.

3. Said St. 1921, c. 303, § 10D, provides that "the department of public health and local boards of health may make rules and regulations to carry out the three preceding sections." But it is also provided in said act that the licensee shall comply with sections 186 to 196, inclusive, of General Laws, chapter 94 (relative to adulteration and misbranding of food and drugs).

G. L., c. 94, § 192, provides: —

> The department of public health and local boards of health shall enforce sections one hundred and eighty-six to one hundred and ninety-five, inclusive, and, except as to standards fixed by law, the said department shall adopt rules and regulations, consistent with said sections, standards, tolerances and definitions of purity or quality, conforming to the rules and regulations, standards, tolerances and definitions of purity or quality adopted or that may hereafter be adopted for the enforcement of the act of congress approved June thirtieth, nineteen hundred and six, and the amendments thereof, the said act being entitled, "An Act for preventing the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein and for other purposes", or now or hereafter adopted by the United States department of agriculture under any other federal law.

In addition G. L., c. 94, § 193, provides that —

> . . . Under the authority given by section one hundred and ninety-two the department of public health shall adopt rules and regulations which shall be observed by the said department and by local boards of health in ascertaining whether there is such a guaranty which may be relied upon by the dealer.

Violation of such rules, regulations and standards is punishable as provided in G. L., c. 94, § 190. The duty of collecting samples under said sections 186 to 195, inclusive, and section 304 may be made either "by authorized agents of the department of public health or of boards of health of towns" (see G. L., c. 94, § 188). The examination of such samples "shall be made under the direction and supervision of the department or board taking such samples," etc. (G. L., c. 94, § 189). So also G. L., c. 94, § 194, imposes a duty upon the Department of Public Health or local board "which took the sample" to present the facts, warn the offender, warn dealers, etc., as therein provided.

It is thus plainly evident that the Massachusetts Department of Public Health has other duties to perform in addition to making regulations, as provided in the act under consideration. Such additional duties relate to adulteration and misbranding of food and drugs under G. L., c. 94, §§ 186–196.

4. St. 1921, c. 303, § 10E, provides the penalty for violation of any provision of sections 10A to 10D, inclusive. This plainly gives the Massachusetts Department of Public Health the right of enforcement of its rules and regulations made under authority of said act and to institute prosecutions for violations thereof.

5. G. L., c. 111, §§ 2–25, inclusive, outline the duties and powers of the Department of Public Health, while sections 26 to 32, inclusive, outline the duties of city and town boards of health. The duties thus respectively outlined are separate and distinct, and there is no intimation in the statutes, under authority of which these departments are created, of any right or power possessed by the Department of Public Health "to order local boards of health to enforce any of the provisions of the act should such boards be negligent in such duties." See Sawyer *v.* State Board of Health, 125 Mass. 182, 192.

In an opinion of the Attorney-General dated Feb. 7, 1917, appears the following statement: —

> To a large extent the powers of local boards of health are conferred by general statutes of the Commonwealth, and the duties of such boards of health are therein prescribed. When acting under such powers and performing such duties, the members of the board of health act as public officers, that is, as agents of the State and not of the city. Attorney-General *v.* Stratton, 194 Mass. 51; Hathaway *v.* Everett, 205 Mass. 246; Haley *v.* Boston, 191 Mass. 291.

Very truly yours,

J. WESTON ALLEN,
Attorney-General.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of April and May, 1922, samples were collected in 108 cities and towns.

There were 1,699 samples of milk examined, of which 544 were below standard, 25 samples had the cream removed, 37 samples contained added water, 2 samples were skimmed and watered, 1 sample was skimmed milk above the legal standard, 1 sample was skimmed milk below the legal standard, and 6 samples contained a compound of boron.

There were 277 samples of food examined, of which 63 were adulterated. These consisted of 4 samples of honey which contained commercial invert sugar; 1 sample of maple syrup which was only 12 per cent maple; 3 samples of scallops which were decomposed; 1 sample of cream which was below the legal standard; 2 samples of nuts, 1 of which was decomposed, and 1 sample was wormy; 4 samples of soft drinks which were not properly labeled; and 48 samples of vinegar which were low in acid.

There were 22 samples of drugs examined, of which 2 were adulterated. These two samples were lime water which contained strychnine.

There were 22 hearings held, and 4 warnings issued, pertaining to violations of the food and drug laws.

The police departments submitted 1,025 samples of liquor for examination, 942 of which were above 2.75 per cent in alcohol. The police departments also submitted 53 samples of poisons for examination, 25 of which were morphine, 11 cocaine, 3 cannabis indica, 1 cocoa containing antimony, 1 chloral hydrate, and 12 samples were examined for poison, with negative results.

There were 18 convictions for violations of the law, $505 in fines being imposed.

Thomas H. Kennedy of East Pepperell, William O. Darby of Tewksbury, Patrick J. O'Neil of South Tewksbury, Stanislaw Kocincki and Nicholas Pappas of Ipswich, and James H. Rowe of Ashland were all convicted for violations of the milk laws.

Dominic Carra of Somerville, Caetano M. Furtado of Fall River, Henry Bernier and Edmond Fugere of Easthampton, Carl A. Weitz of Boston, and Joseph Hornstein of Providence, R. I., were all convicted for violations of the food laws. Carl A. Weitz of Boston appealed his case.

Max Cohen of Methuen, Louis Kotarski and Charles E. Holden of Peabody, Matthew Merceri of Monson, Samuel Jordan of Salem, and James Carpenter of Stephentown, N. Y., were all convicted for violations of the slaughtering laws. Samuel Jordan of Salem appealed his case.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Milk having the cream removed was produced as follows: 6 samples, produced by Charles B. Stevens of Tewksbury Center; 1 sample each, produced by Joseph F. Long and Aristide Gagne of South Hadley, James Pomfret of North Wilmington, and John Kennedy of Whately.

Milk having the cream removed and also containing added water was produced as follows: 2 samples, produced by Patrick J. O'Neil of South Tewksbury.

Milk containing added water was produced as follows: 7 samples, produced by Fred W. Jerome of South Hadley; 6 samples, produced by Thomas H. Kennedy of East Pepperell; 4 samples, produced by James H. Rowe of Ashland; and 3 samples, produced by Stanislaw Kocincki of Ipswich.

Three samples of scallops which were decomposed were obtained from R. S. Hamilton Company of Boston.

One sample of nuts which were decomposed was obtained from Agualia Brothers of Boston; and 1 sample of nuts which were wormy was obtained from the Mohican Company of Salem.

Soft drinks which were misbranded, and not labeled in accordance with regulations, were obtained as follows: 1 sample each, obtained from the Park Bottling Company and Bechard Brothers, both of Lowell, and C. Leary & Co. of Newburyport.

There were 11 confiscations, consisting of 37 pounds of decomposed fowl, 400 pounds of dried-out beef, 500 pounds of dried-out mutton, 1,100 pounds of dried-out pork, 292 pounds of decomposed pork butts, 305 pounds of decomposed pork shoulders, 1,895 pounds of decomposed pork trimmings, 160 pounds of unstamped and immature veal, 7 pounds of decomposed sweetbreads, 10 pounds of tuberculous liver, and 1,950 pounds of decomposed shrimp.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of March, 1922: 1,049,550 dozens of case eggs, 242,648 pounds of broken-out eggs, 980,315 pounds of butter, 808,697 pounds of poultry, 3,396,734 pounds of meat and fresh meat products, and 1,099,427 pounds of fresh food fish.

There were on hand April 1, 1922, 933,570 dozens of case eggs, 468,557 pounds of broken-out eggs, 1,831,098 pounds of butter, 5,895,145½ pounds of poultry, 15,913,190 pounds of meat and fresh meat products, and 3,468,628 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of April, 1922: 8,640,810 dozens of case eggs, 166,368 pounds of broken-out eggs, 670,267 pounds of butter, 375,725 pounds of poultry, 3,030,533 pounds of meat and fresh meat products, and 1,235,665 pounds of fresh food fish.

There were on hand May 1, 1922, 9,328,785 dozens of case eggs, 470,660 pounds of broken-out eggs, 479,531 pounds of butter, 4,577,087½ pounds of poultry, 16,047,767 pounds of meat and fresh meat products, and 3,634,115 pounds of fresh food fish.

RÉSUMÉ OF COMMUNICABLE DISEASES.

March, 1922.

General Prevalence.

There were 10,202 cases of communicable diseases reported for this month as against 12,721 cases for February. This decrease was due entirely to the lessened incidence of influenza as there were slightly increased incidences in several of the more important communicable diseases.

Chicken Pox. — There were reported 510 cases of this disease for the month.

Diphtheria fell off slightly from 789 cases for February to 718 cases for this month.

Dog bite requiring antirabic treatment was reported in 12 instances.

Encephalitis lethargica increased from 5 cases for last month to 28 for this month. The total for March, 1921, was 43 cases.

Epidemic cerebrospinal meningitis was reported in 14 instances.

German measles had its usual incidence with 54 cases.

Gonorrhea and syphilis were reported in about the usual numbers, 409 and 188 cases, respectively.

Influenza decreased from 5,221 cases for February to 1,647 cases for this month. These cases as during last month were reported chiefly from eastern and central parts of the State.

Measles increased from 2,062 cases for last month to 2,657 cases for this month. This number is made up chiefly from reports from eastern and northeastern parts of the State.

Mumps. — There were 513 cases of mumps reported for the month.

Pneumonia, lobar, with 988 cases was reported in about the same number as last month.

Scarlet fever increased slightly to 998 cases. The total for February was 950 cases.

Tuberculosis, Pulmonary. — There were 651 cases of pulmonary tuberculosis reported for the month. This is an increase of nearly 200 cases over last month's report.

Tuberculosis, other forms, was reported in 95 instances.

Typhoid Fever. — There were reported 32 cases for the month, all of which were scattered cases.

Whooping cough increased slightly to 523 cases. Last month's total was 391 cases.

RARE DISEASES.

Anterior poliomyelitis was reported from Chatham, 1; New Bedford, 2; Norwood, 1; total, 4.

Anthrax was reported from Boston, 1.

Dog bite requiring antirabic treatment was reported from Arlington, 1; Billerica, 1; Boston, 1; Cambridge, 1; Holyoke, 1; Ipswich, 2; Lowell, 1; Medford, 2; Newton, 1; Winthrop, 1; total, 12.

Encephalitis lethargica was reported from Boston, 2; Brockton, 1; Brookline, 2; Fall River, 1; Haverhill, 2; Holliston, 1; Ipswich, 1; Lawrence, 5; Methuen, 1; New Bedford, 1; Plymouth, 1; Salem, 1; Salisbury, 1; Waltham, 1; Webster, 1; West Boylston, 1; Worcester, 5; total, 28.

Epidemic cerebrospinal meningitis was reported from Boston, 2; Cambridge, 1; Dudley, 1; Fall River, 3; Lowell, 1; Malden, 1; Melrose, 1; New Bedford, 1; Revere, 1; Southbridge, 1; total, 13.

Malaria was reported from Boston, 6; Brockton, 1; Dartmouth, 1; total, 8.

Pellagra was reported from Northampton, 1.

Septic sore throat was reported from Boston, 6; Brookline, 2; Cambridge, 1; Chicopee, 1; Easton, 1; Provincetown, 1; Shelburne, 1; Westford, 2; total, 15.

Tetanus was reported from Pittsfield, 1.

Trachoma was reported from Boston, 4; Cambridge, 3; Chelsea, 1; Lawrence, 1; Lynn, 1; total, 10.

DISTRIBUTION.

All Communicable Diseases.

	March, 1922.	March, 1921.
Total cases	10,202	10,501
Case rate per 100,000 population	259.2	269.1

Certain Prevalent Diseases.

	March, 1922.	March, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:			Marion	(0)	5
Total cases	718	755	New Bedford	(8)	37
Case rate per 100,000 population	18.2	19.3	Brockton	(12)	34
			Haverhill	(11)	31
			Wakefield	(1)	9
			Fitchburg	(5)	10
			Chicopee	(6)	11
			Holyoke	(4)	14
			Pittsfield	(2)	8
Measles:			Brockton	(5)	90
Total cases	2,657	2,836	Cambridge	(191)	230
Case rate per 100,000 population	67.5	72.7	Hull	(0)	52
			Quincy	(5)	88
			Everett	(28)	89
			Ipswich	(0)	50
			Manchester	(0)	92
			Peabody	(9)	100
			Lawrence	(11)	181
			Medford	(12)	57
			Methuen	(1)	188
			Somerville	(15)	168
			Waltham	(1)	86
			Holyoke	(9)	66
			Westfield	(2)	90
Scarlet fever:			Fall River	(8)	26
Total cases	998	1,258	Middleborough	(1)	19
Case rate per 100,000 population	25.4	32.2	New Bedford	(12)	33
			Brockton	(13)	64
			Cambridge	(24)	40
			Milton	(2)	13
			Newton	(7)	16
			Quincy	(9)	21
			Stoughton	(0)	18
			Whitman	(1)	12
			Peabody	(1)	10
			Stoneham	(1)	27
			Waltham	(8)	18
			Winchester	(0)	18
Typhoid fever:					
Total cases	32	52			
Case rate per 100,000 population	.8	1.3			
Whooping cough:			Marlborough	(0)	9
Total cases	523	894	Salem	(4)	21
Case rate per 100,000 population	13.3	22.9	Swampscott	(0)	20
			Andover	(0)	46
			Belmont	(0)	11
			Waltham	(4)	12
			Fitchburg	(0)	30
			Worcester	(8)	26
			Greenfield	(1)	8
Tuberculosis, pulmonary:					
Total cases	651	579			
Case rate per 100,000 population	16.5	14.8			
Tuberculosis, other forms:					
Total cases	95	94			
Case rate per 100,000 population	2.4	2.4			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

April, 1922.

GENERAL PREVALENCE.

There were reported in April 8,516 cases of communicable diseases, as compared with 10,202 in March, a decrease of 1,686 cases. A general decrease in the total number of cases reported was evidenced in all of the common communicable diseases (chicken pox, diphtheria, mumps and scarlet fever) with the exception of measles and German measles.

Diphtheria decreased in the number of cases reported from 718 in March to 581 in April.

Dog bite requiring antirabic treatment was reported in 18 instances. This is a larger number than was reported in March, but it is in proportion to the steady increase in this condition which has been occurring for several months.

Encephalitis lethargica also is increasing in incidence. In February there were 5 cases reported, in March 28, and in April 47. Investigation of all cases of this condition reported has not as yet added to our knowledge of the disease.

Epidemic cerebrospinal meningitis was reported in 15 instances. This is about the usual number of cases reported.

The number of cases of *German measles* is increasing slightly. The total for April was 89.

Gonorrhea and syphilis showed a slight decrease in the number of cases reported from the totals of last month, there being 373 and 181 cases, respectively.

Influenza showed a marked decrease from 5,221 cases in February and 1,647 cases in March to 163 cases in April. Epidemic conditions have prevailed in previous years since this disease was made reportable, and it is therefore impossible to judge whether or not this is the usual seasonal decrease.

Measles increased from 2,657 in March to 3,621 in April. A similar increase was noted in April, 1921.

Mumps. — There were 506 cases of mumps reported during the month, a slight decrease from the total for March.

There were 528 cases of *lobar pneumonia* reported during the month, which shows a decrease of 460 cases.

Scarlet fever showed a decrease to 743 cases. This is nearly 200 less than the totals for January, February or March of this year.

Tuberculosis, pulmonary, and *tuberculosis, other forms,* were reported in about the usual numbers, there being 609 and 97 cases, respectively.

Typhoid fever was reported in but 29 instances. This is the smallest number of typhoid fever cases to be reported in any one month since 1910, with the exception of February, 1920, when there were but 22 cases reported. The figures by months are not available previous to 1910, but it seems fair to say that February, 1920, and April, 1922, give the lowest figures since the disease was made reportable in this State.

Whooping cough decreased in number of cases reported from 523 in March to 339 in April. This figure is low when compared to that for April, 1921, when 707 cases were reported.

RARE DISEASES.

Anterior poliomyelitis was reported from Boston, 2; Lynn, 1; total, 3.

Dog bite requiring antirabic treatment was reported from Boston, 2; Cambridge, 1; Lowell, 10; Methuen, 1; Rowley, 2; South Hadley, 1; Winthrop, 1; total, 18.

Dysentery was reported from Springfield, 1.

Encephalitis lethargica was reported from Boston, 21; Brockton, 3; Brookline, 1; Fall River, 1; Chelsea, 1; Lawrence, 1; Lynn, 1; Marion, 1; Marshfield, 1; Millbury, 1; Newburyport, 2; North Brookfield, 1; Reading, 1; Springfield, 1; Waltham, 1; Watertown, 1; Woburn, 1; Worcester, 7; total, 47.

Epidemic cerebrospinal meningitis was reported from Brockton, 2; Cambridge, 2; Clinton, 1; Fall River, 2; Lawrence, 1; Medfield, 1; North Adams, 1; Lynn, 2; Revere, 1; West Springfield, 1; Woburn, 1; total, 15.

Pellagra was reported from Boston, 1; Waltham, 1; total, 2.

Septic sore throat was reported from Boston, 2; Greenfield, 2; Lynn, 1; Plymouth, 1; Somerville, 1; total, 7.

Tetanus was reported from Marlborough, 1.

Trachoma was reported from Boston, 4; Brockton, 1; Cambridge, 1; Melrose, 1; total, 7.

Trichinosis was reported from Holyoke, 1.

DISTRIBUTION.

All Communicable Diseases.

	April, 1922.	April, 1921.
Total cases (all causes)	8,516	9,629
Case rate per 100,000 population	216.4	246.7

Certain Prevalent Diseases.

	April, 1922.	April, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:			New Bedford	(6)	24
Total cases	581	676	Brockton	(5)	23
Case rate per 100,000 population	14.8	17.3	Beverly	(0)	10
			Haverhill	(12)	21
			Lynn	(13)	22
			Pittsfield	(2)	10
Measles:			Boston	(899)	934
Total cases	3,621	3,291	Brockton	(3)	109
Case rate per 100,000 population	92.0	84.3	Brookline	(31)	72
			Cambridge	(200)	289
			Quincy	(7)	95
			Walpole	(1)	76
			Everett	(28)	49
			Ipswich	(0)	146
			Lynn	(7)	22
			Manchester	(1)	22
			Marblehead	(0)	23
			Newburyport	(5)	41
			Peabody	(5)	84
			Salem	(8)	150
			Wakefield	(0)	29
			Concord	(2)	34
			Lawrence	(9)	145
			Methuen	(1)	73
			North Andover	(10)	110
			Somerville	(34)	146
			Waltham	(7)	22
			Weston	(0)	24
			Athol	(1)	103
			Webster	(4)	39
			Chicopee	(8)	16
			Holyoke	(15)	114
			Northampton	(10)	28
			Westfield	(2)	53
Scarlet fever:			Middleborough	(0)	5
Total cases	743	1,013	New Bedford	(7)	30
Case rate per 100,000 population	18.9	26.0	Plymouth	(1)	10
			Wareham	(0)	9
			Brockton	(17)	44
			Newton	(6)	16
			Whitman	(1)	13
			Melrose	(2)	12
			Salem	(6)	12
Typhoid fever:					
Total cases	29	44			
Case rate per 100,000 population	.7	1.1			
Whooping cough:			Hingham	(0)	38
Total cases	339	707	Marlborough	(0)	6
Case rate per 100,000 population	8.6	18.1	Norwood	(2)	8
			Quincy	(2)	9
			Haverhill	(6)	13
			Andover	(0)	22
			Belmont	(1)	7
			Chelmsford	(0)	10
Tuberculosis, pulmonary:					
Total cases	609	574			
Case rate per 100,000 population	15.5	14.7			
Tuberculosis, other forms:					
Total cases	97	71			
Case rate per 100,000 population	2.5	1.8			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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TUBERCULOSIS NUMBER

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., COMMISSIONER

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FOREWORD.

Eugene R. Kelley, M.D., Commissioner of Public Health.

"*The most dangerous disease, and the one which proved fatal to the greatest number, was consumption.*"

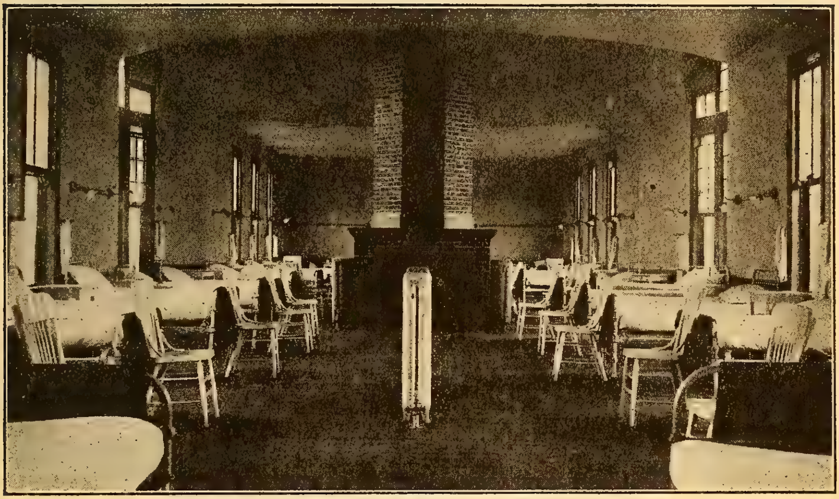
IN this aphorism of the Father of Medicine, antedating by centuries the birth of Christ, we still find our chief reason for the modern struggle against tuberculosis.

Those who are inclined to say that general well-being, prosperity, and higher standards of comfort and physical welfare of the great masses of humanity alone account for the dramatic drop in the relative fatality of this dread disease will always have a difficult task to persuade most thinking persons that their grounds of argument are solid. It is one of the most remarkable coincidences conceivable, if it has merely happened, that step by step with the great development of our modern machinery for combating tuberculosis the death rate of the disease has steadily fallen, until, for the first time probably in history (at least in this country, England and the Scandinavian countries, where the anti-tuberculosis work has been most aggressive and active), consumption can no longer be said to be the "one which has proved fatal to the greatest number." It is now in this State and in many States of this country far surpassed in fatality by other diseases, and in Massachusetts is at least substantially below the fatality point of pneumonia and cancer. Another way to realize what has happened is to reflect that the rate of fatality to-day from consumption is substantially one-half of what it was a generation back.

"Cause and Effect" Relationship.

Regardless of "trends" and "cures" and "biologic causes operating since the middle of the past century" I feel that the keenest observers the world over are convinced that there is a "cause and effect" relationship between the unprecedented expenditure of effort and zeal on the part of thousands of full-time and tens of thousands of part-time workers against the great white plague in the past generation the present gratifying results as represented by the decrease in the mortality and morbidity rates of tuberculosis.

Because these workers have become so numerous and the facilities for carrying on the anti-tuberculosis movement have become so complex, it has been deemed appropriate to devote this issue of the "Commonhealth" to a presentation of the present status of the tuberculosis campaign in Massachusetts, and at the same time place in more readily accessible form reliable information regarding all our institutions, clinics, dispensaries, nursing services, educational activities, etc., that are actively interested in and engaged upon various phases of the tuberculosis campaign.



Rutland State Sanatorium — Ward C.

Westfield State Sanatorium — Boys' Workshop.

THE STATE PROGRAM.

By Sumner H. Remick, M.D., Director, Division of Tuberculosis, State Department of Public Health.

MASSACHUSETTS was one of the first States in the Union to recognize the importance of the prevention and control of tuberculosis. The first concentrated effort along this line was manifested in 1895, when the Legislature authorized the building of the Rutland State Sanatorium, the first State institution for the treatment of tuberculosis in this country. For over twenty-five years Massachusetts has been actively engaged in this great work, and during this period has lowered the death rate for pulmonary tuberculosis from 220.3 to 84.9 per 100,000. Thousands of her citizens have been benefited; hundreds of ex-patients are to-day physically able to support their families; and many are holding responsible positions throughout the Commonwealth and contributing to her welfare.

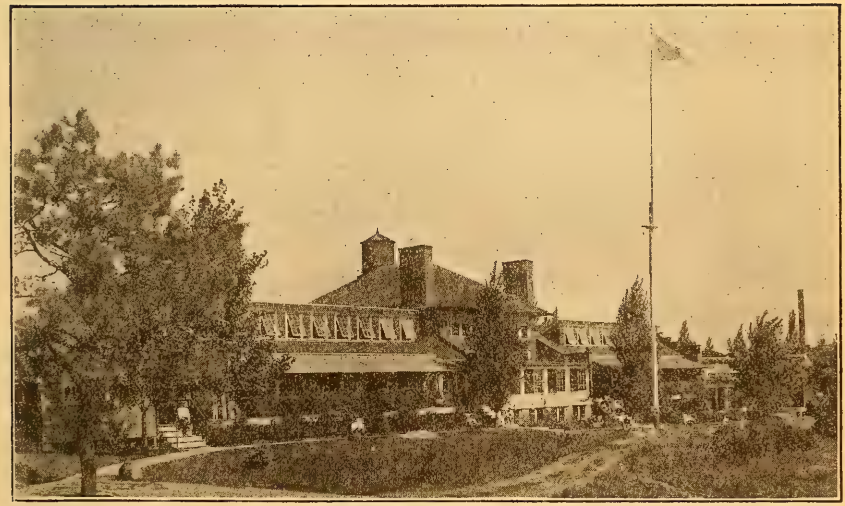
Sanatoria.

Four State sanatoria, six county hospitals and eighteen municipal hospitals, with the beds provided by private, State penal and insane institutions, total nearly 3,800 beds available for the care and treatment of pulmonary tuberculosis.

The State institutions, representing 1,060 beds, are under the direct management of the State Department of Public Health. Five of the six county hospitals are managed by the county commissioners; the sixteen municipal hospitals are under the management of the local board of health, with two exceptions, — Pittsfield and New Bedford.

It is the policy of the State Department of Public Health to admit only early or favorable cases to the State institutions for the following reasons: First, the State sanatoria were not designed or equipped to care for the advanced consumptive who requires hospital treatment; they are not now, and never will be, adequate hospitals. For the care and treatment of the favorable case they are unequaled, for this is the work they were equipped to do. Second, the municipal and county tuberculosis hospitals were designed and equipped to care for the advanced case. To preserve the morale of such hospitals it seems expedient to admit some favorable cases, but we have found that by placing the advanced cases

North Reading State Sanatorium — Men's Pavilion.



Lakeville State Sanatorium.

in the county and municipal hospitals they are happier and more contented, because they are near their relatives and friends, and receive the hospital comforts that this type of case demands.

Westfield for Children.

Twenty-five years ago few of us realized that children had tuberculosis, and the few who were advised to take sanatorium treatment were admitted to all institutions. This did not prove satisfactory for obvious reasons, and so it was wisely decided to restrict admission of children to one institution. The sanatorium at Westfield was chosen. A school was opened for the children, so although they were ill they had an opportunity to keep up their school work, if their condition permitted. They also had opportunity for vocational training, as well as educational. In the last few years, however, the number of children applying for admission has increased to such a degree that the Department has reserved Westfield entirely for a children's sanatorium.

Dispensaries.

Since the tuberculosis dispensary law, requiring every city and town of 10,000 population to maintain a dispensary for the discovery and supervision of pulmonary tuberculosis, was passed in 1911, fifty-six dispensaries have been established. These are largely maintained and controlled by the local boards of health. The State Department indirectly supervises them by fixing the standards for room, equipment, etc. These dispensaries ought to be one of the most important agencies we have in the State for discovering early tuberculosis, and for the supervision of all reported cases. There is no question but what they have been of eminent value in many towns and cities, but they have fallen far short of the ideal in certain respects. In my opinion a dispensary well managed ought to have every case of tuberculosis reported in its vicinity under supervision; it ought to see that every contact is examined; it ought to examine regularly all discharged hospital or sanatorium cases, and follow up each patient.

To do all these things the dispensary must be made popular in the community by having a staff in whom the public and the physicians have implicit faith; by having the board of health, backed by public sentiment, awake to the importance of the prevention and control of tuberculosis, and willing to pay an adequate sum to obtain it. With such a nucleus we could soon have every case of tuberculosis in the Commonwealth under supervision.

Consultation Clinics.

Not until the medical schools offer better training in tuberculosis can we hope to find a general practicing physician who can diagnose tuberculosis in its earliest stages. At present only a specialist can discover the cases as early as we must find them in order that the disease may be arrested. Again, the general practitioner does not see enough cases of consumption in his practice to become expert in chest technique, else he would be a specialist himself, and not a general practitioner. The State Department of Public Health has long hoped that the sanatoria staffs might be of service to their brother physicians in the diagnosis of early pulmonary tuberculosis. To place such a service at the disposal of the physician and his patient, the Department last year established consultation clinics in different parts of the State, placing the specialized skill of its physicians entirely at the disposal of the family physician, free of charge.

Examination Clinics.

As Dr. Chadwick, superintendent of the Westfield State Sanatorium, says: "To continue our former policy of waiting for pulmonary tuberculosis to become manifest in the adult before attempting its cure is a sad waste of effort. The so-called early cases in adults are in reality a reactivation of childhood disease." The greatest factor in discovering tuberculosis in children is the examination clinic which functions in the small town as the dispensary functions in the city. The nurses, who are furnished by the Massachusetts Tuberculosis League, assist the school nurses to weigh and measure all the children in a community. After obtaining the consent of the parents, each child, who is 10 per cent or more underweight, is taken to the examination clinic where she is examined by a specialist detailed by the Division of Tuberculosis. Malnutrition is not a result of too little food, but of too little of the right kind of food. We must safeguard the malnourished child. Dr. Henry D. Chadwick has recently made some very conclusive studies which have disclosed a startlingly close relation between malnutrition and tuberculosis. He found between 7 and 8 per cent of malnourished children definitely tuberculous.

Recognizing the importance of the part the child will play in the future tuberculosis program, it is the intention of the Department to give every child in the Commonwealth the opportunity to be examined at such a clinic.

NURSES' CONFERENCES.

Dr. W. I. Gallivan, first Director of the Department's Division of Tuberculosis, realizing the inspiration to be gained at conferences, held two very successful nurses' conferences last year. This year two more, one at Rutland and one at Westfield, have been held, and two have been planned for the fall to be held at the other two State sanatoria. These conferences are proving the inspiration to the nurses that Dr. Gallivan hoped when he conceived the idea. At each meeting the attendance has exceeded the highest expectation. This periodic getting together creates a lively interest in the work going on in other sections of the district, broadening each nurse's vision and arousing a fine spirit of co-operation that gives to the work throughout the State a fresh impetus.

To make our nursing force more efficient, and to give it the newest methods in public health work, we are planning some intensive work with small groups of nurses. In a group of this sort the program of the Department can more readily be discussed, and a clearer understanding of the work will demonstrate the need of standardizing nurses' reports.

FOLLOW-UP WORK.

Early diagnosis and sanatorium treatment are the first two steps in the program for the control of tuberculosis; the third, to follow up every ex-patient. To-day we realize as never before the economic value of supervising the patient who has been discharged from a sanatorium. This supervision, to be valuable, must be constant, which means that every patient should be examined regularly by his own physician or by the dispensary physician, and that the public health or tuberculosis nurse should visit his home to see that the advice he receives is actually carried out.

This follow-up work is supervised by the District Health Officers and their nursing assistants, who are required to send to the State House an original history on every reported case, followed by a report on each case, every six months. The local nurses visit the discharged patients, make out the reports and send them to the District Health Officer's nursing assistant, who files them with the Division of Tuberculosis. At present there are 23,000 cases on file, a silent tribute to these splendid workers.

TUBERCULOSIS CLASSES.

Frequently a patient applying to the State for sanatorium treatment is forced to wait weeks for admission. Feeling that something ought to be done for that patient at once, the Division has secured a special worker who will visit these cases with the permission of the attending physician. This special health worker will be able to teach the patient the simple rules of treatment which can be carried out at home, such as rest, proper nourishment and airy sleeping rooms. She also is able to prepare the patient-to-be for life in a sanatorium by telling the patient frankly that it is a long, hard fight, and that it may mean spending weeks in bed and giving strict adherence to the advice of the doctor in charge. Oftentimes we err in painting sanatorium life too rosily in the desire to get the patient to go to a sanatorium for treatment, but, in the long run, it is easier for the patient to put up a winning fight if he knows just what is before him and how he best can play his part.

The special health worker will also conduct "tuberculosis classes" for ex-patients. These classes ought to meet with the worker every two or three months for instruction and examination by a specialist, with the aim, always, to keep the patient well after he returns to his home.

The Division of Tuberculosis enjoys the finest co-operation with the official and unofficial tuberculosis agencies, but our State program cannot secure the results we desire until every community recognizes its responsibility in the care and supervision of its tuberculous. Tuberculosis, I believe, is a local problem, and when each community knows its true situation and provides proper facilities for diagnosis and supervision, the State Department of Public Health will function to its fullest, and will succeed in controlling the most serious of preventable and communicable diseases.

COUNTY TUBERCULOSIS HOSPITALS.

By A. S. Macknight, M.D., Superintendent, Bristol County Tuberculosis Hospital.

SECTION 35, chapter 75 of the Revised Laws of Massachusetts, was the foundation stone upon which cities and towns within the Commonwealth were authorized to erect hospitals for the care and treatment of diseases dangerous to the public health, including tuberculosis, as defined by the State Board of Health, unless there already existed in the cities or towns a hospital for the reception of persons ill with such diseases which was satisfactory to the State Board of Health, or unless some arrangement satisfactory to the State Board of Health was made between neighboring cities, or neighboring towns, or neighboring cities and towns, for the care of persons having such diseases. All such hospitals thus established and maintained by cities and towns were to be subject to the orders and regulations of the boards of health of the cities and towns in which they were respectively situated. The amended form includes section 1, chapter 365 of the Acts of 1906; chapter 613, Acts of 1911; chapter 151, Acts of 1912; and chapter 647, Acts of 1914. Other amendments since 1914, if any, are not referred to at the present time, nor does it seem necessary.

There are other laws, for example, chapter 597, Acts of 1911, as amended by chapter 637, Acts of 1912, which aim to promote the building and use of tuberculosis hospitals in cities and towns by providing a subsidy, to be paid from the treasury of the Commonwealth under certain conditions; also many other laws related thereto and bearing upon the hospital question concerning cities and towns, which, for our purpose, need not be quoted. It is with the amendments to section 35 of chapter 75 of the Revised Laws — particularly that of chapter 613 of the Acts of 1911, but more especially that of chapter 151 of the Acts of 1912 — that we are concerned, because they had to do with creating the county hospital idea in Massachusetts, the history of which, up to the present time, has never appeared in cold type. It may be said here that the State Inspectors of Health of Massachusetts, originally appointed by the State Board of Health and confirmed by the Governor and Executive Council in 1907, — following the report of the Tuberculosis

Commission of 1906, — had been definitely "instructed and charged to inform themselves regarding the sanitary conditions of their districts, and concerning all influences dangerous to the public health or threatening to affect the same; and shall gather all information possible concerning the prevalence of tuberculosis and other diseases dangerous to the public health within their districts; shall disseminate knowledge as to the best methods of preventing the spread of such diseases, and shall take such steps as, after consulting with the state board of health and the local [State] authorities, shall be deemed advisable for their eradication." (See sections 3, 4 and 8 of chapter 537, Acts of 1907; chapter 709, Acts of 1911; section 6, chapter 726, Acts of 1912.)

HISTORY OF ORIGIN OF COUNTY HOSPITALS.

The Southeastern Health District Association, the first-born of all such associations within the Commonwealth, first saw the light in the Sagamore Club Room, Sagamore, Bourne, in 1911–12. The meeting was in charge of the then State Inspector of Health, assisted by Dr. E. F. Curry, Sagamore, surgeon to the Keith Car Works. The place of meeting was provided by the Hon. Eben C. Keith, Sagamore, then one of the Governor's Council and still recognized as the Godfather of the association. There were also present representatives of the boards of health of the Cape district, of whom Blackwell and Holway of Bourne, Crowell of Dennis, Watson of Falmouth, Fessenden of Brewster, now sleep their last sleep. They with others, whose deeds follow them, even though names have been forgotten, still live "in minds made better by their presence." They were, all of them, sturdy and strong for law, order and the right. At that time the county commissioners of Barnstable were with us. Bourne of Bourne and Nickerson of Chatham still remain, but the other commissioner of that time is no more. They did good work then. From that time on, other meetings of the association have been held within the district, and as a result an earnest, helpful, friendly fellowship sprang up, so that the problems confronting the officials of one town were taken up, round-table fashion, and discussed freely by the officials of the other towns, and advice, help and solutions offered and accepted.

In this way legislative enactments were presented as *topics* before the association, at the regular meetings. Finally, when chapter 151 of the Acts of 1912 was passed, the Hon. William J. Look of Tisbury, representing part of Martha's Vineyard, was consulted frequently as one of the members. The act itself read, "cities shall and towns may" provide hospitals for the care of cases of tuberculosis within their respective jurisdictions. This caused considerable discussion in all the towns. Two meetings of the town officials of the district were called, one on the Cape, and the other for the Vineyard towns, — Nantucket and Gosnold. The second was held at Woods Hole, on a very cold winter day. This meeting was finally held in the cabin of the steamer "Sankaty" at the Woods Hole Dock, where the vessel was temporarily tied up. Those present represented the towns of Falmouth, Oak Bluffs, Edgartown, Tisbury, West Tisbury, Chilmark, Gay Head and Gosnold. Bosworth and Church of the latter town came eighteen miles by motor boat through storm and ice, to say nothing about their return. Vanderhoop of Gay Head, Allen of Chilmark and Rotch of West Tisbury left home the night before, and with Representative Look and W. A. Robinson of Tisbury came over by steamer from Vineyard Haven. Nantucket men could not come on account of the weather and sea. At both meetings — held on separate days — the county hospital idea took root. Nantucket already had a small cottage hospital, run and supported by Dr. John E. Grouard, his friends, summer visitors and others.

It was thought that Nantucket, with the aid of its town and county officials, could take care of its own people, by an arrangement with said hospital, and this town was no longer considered. The Vineyard had a United States Marine Hospital at Vineyard Haven, and it was thought that the county and town officials might be able to arrange with the government for the care of its people, and it was so decided, although the physicians of the Vineyard — especially Worth, Mayhew, Davis and Fairchild — felt that the Vineyard ought to have its own hospital some time in the future, and perhaps that matter might be arranged satisfactorily. Davis and Fairchild have since passed on. Their help, deeds and services are still green in our memories. The county hospital idea, however, continued to grow, and by the Falmouth officials was well nurtured; consequently it flourished until it found better soil in the minds of two physicians, the venerable Walker and genial Watson. Neither lived long enough to see his work completed. Walker was an overseer of the poor, Watson the town physician and a member of the board of health, who with Swift, the veterinarian, and others started the ball rolling. It appeared that Falmouth, the "Brookline of the Cape," had experienced three abrupt scares with communicable diseases, one of such character as to require a midnight automobile trip from the town to the South Department of the Boston City Hospital, by order of the board of health; the second, a midnight trip by the State Inspector of Health and said board to Teaticket village, on a smallpox rumor; and third, the passing of typhoid fever cases by boat to Woods Hole, and thence, by trains, through Falmouth, *en route* to other cities and towns, without report, permit or notice.

Following such experiences, one of the wealthy summer visitors proposed the finding of $10,000 to aid in providing some sort of town hospital for the care and treatment of cases dangerous to the public health. At this juncture Dr. Walker advocated a town hospital, ably seconded by Dr. Watson, aided by the board of health and overseers of the poor, who urged a special association meeting which was held at the Idle Hour Theatre in Hyannis. This was well attended by town and county officials and many others. At that meeting Falmouth presented the case through Drs. Walker, Watson and Swift, urging a hospital for tuberculosis and other communicable diseases, which was acted upon and passed by unanimous vote. This finally took shape as a county hospital, which should provide for such disease from all parts of the county, so situated that similar cases from Nantucket and the Vineyard might be admitted. This hospital matter finally reached the county commissioners, but was held under advisement until the State Board of Health should approve same. In the meantime other State Inspectors of Health had succeeded in organizing associations within their own districts, following surveys for county hospital purposes, when it became known that the Hampshire County commissioners purposed a county hospital, under chapter 527, Acts of 1913, approved April 21, 1913. This was the first county hospital in Massachusetts. The Barnstable County commissioners followed, under chapter 153, Acts of 1915, approved April 10, 1915, and the second county hospital in Massachusetts was established.

Barnstable County Sanatorium.

Then followed chapter 286, Acts of 1916, under which Norfolk, Plymouth and Bristol County commissioners began the erection of their respective county hospitals. These hospitals were finally completed and opened within a comparatively short time of each other.

MUNICIPAL TUBERCULOSIS HOSPITALS.

By Frank H. Hunt, M.D., Resident Physician, Boston Sanatorium, Boston, Mass.

IN any article on municipal tuberculosis hospitals or sanatoria it is at once apparent that these institutions constitute only one phase of tuberculosis work, and that a large part of their successes or failures is in a great measure dependent upon outside efforts. An inquiry as to the sources from which the patients come immediately brings us in touch with a central body, or clearing house, — in Boston, the out-patient department of the Boston sanatorium; in other cities, the tuberculosis dispensary or clinic.

Case-finding and Diagnosis by Dispensaries.

These dispensaries, officered by competent medical, nursing and social service executives, make strenuous endeavor to hunt out and get into personal contact with every known and suspected case of tuberculosis, and, following any lead, to find cases as yet unsuspected.

A diagnosis having been made, the dispensary head makes his decision or recommendation as to the final disposal of each particular case, knowing at this time the stage of the disease, its degree of activity, and the financial, social and home condition of his patient. He may advise home care and nursing, sanatorium care in one of the State institutions, or hospitalization in his city institution.

Hospital Accommodations for Tuberculous Patients.

The Commonwealth of Massachusetts requires by law that each city shall make hospital provision for the care of its own moderate advanced and advanced cases of tuberculosis. Seventeen cities have complied with this law and now have well-equipped hospitals with a bed capacity estimated to be sufficiently high to take care of its tuberculous sick.

Therefore the municipal tuberculosis hospital, as it is built to-day, must be so constructed and equipped as to give especial care to this more or less advanced type of the disease. This type may for our study be subdivided into four classes: —

First. — The very ill and dying who need close medical and constant nursing attention.

Second. — The semi-bed cases, — those with frequent relapses or recurring hemorrhages, generally with no serious immediate consequences, but who need almost as close supervision.

Third. — Those who are in fair condition, whose temperature and pulse are generally normal, and who, while not bed patients, are unable to do much more than simply "sit around," neither sick nor well, but always on the verge of getting better or worse.

Fourth. — Those, who, by improving, have graduated from class three, and who may be put on exercise or work, graded according to their reactions.

Each of these classes requires different treatment, — medical, nursing and housing.

The first three are strictly hospital cases, and they must be so located that every convenience of the hospital shall at all times be accessible to them; that is, it should be possible that they be easily and quickly transferred at any time from one unit to another, or to the operating, X-ray or throat rooms.

The fourth class — ambulatory and normal temperature cases — are more content and happier if they can get away from the sicker and more hopeless ones, and for these, cottages or camps situated near the hospital proper are provided, not too far away, for these patients must still remain under supervision, and food and heat are to be brought to them from the central plant.

Plan of Institution for Tuberculous Patients.

In planning this type of institution, therefore, it is well to remember the chronicity of the disease, with its many exacerbations and relapses which so often mean to the patient a long-continued residence with many changes from one part of the hospital to another.

It is not intended in this paper to go into details of hospital construction, but it cannot be written too often that for the hospital proper, at least, absolutely fireproof buildings should be demanded. We are dealing with bedridden patients, and panic among them, even though the fire does no serious damage, is generally the direct cause of one or more fatalities.

The simplest design for these hospitals is perhaps the best, — parallel wings connected by a covered or closed-in passageway. These wings may be increased in number as the demand for beds increases. In practice we have found a building of two stories more satisfactory than one of three. Even here the elevators must be large and kept in working order. Each wing, constituting an upper and lower floor ward unit, should be so divided as to take care of the progressing stages of the disease. The plan includes a central corridor of good width, and rooms at both ends large enough for four or even five beds. The average patient who is not too sick does not like to be alone, and if isolated he will request companionship. Single rooms must be provided in sufficient number to take care of the extremely ill and dying. The nurses' desks, diet kitchen, baths, etc., being in the midsection, these single rooms are more accessible to the workers of the ward.

For classes one and two, six of the larger rooms and twelve single rooms provide a forty-two bed working ward, in which the various cases may be moved about according to their immediate conditions. The single rooms should be large enough to take care of another bed in emergencies. Shifting patients is always a problem unless some such anticipatory provision be made.

For the class three patients no rooms are required, for an open, well ventilated and lighted ward is preferable. This ward may be divided into two half wards by the kitchen, bathrooms, linen closet, etc.; nine or ten beds properly spaced on each side of such a half ward will give satisfactory accommodations to thirty-six or forty male patients. This grouping is not satisfactory to female patients.

For the class four patients there are many types of cottages or shacks of varying degrees of comfort, all, as a rule, fairly satisfactory to the patient — all, as a rule, unsatisfactory to the medical officer in charge. In few institutions are these cottage patients under sufficiently close supervision, and while the extra freedom may be delightful and beneficial to many, it is too often the definite cause of a breakdown in others.

Boston Sanatorium — Ward.

Diet adjusted to Patient's Need.

For the care of the patient we must still hold in mind the subdivision of cases. Diets will differ just as in any hospital. Soft, liquid or semi-solid diets are often needed. The chronic case will sometimes also be a diabetic or chronic Brights. The toxic patient remains our most difficult feeding problem. Do the best we may this man's food has no joy for him and all too little sustenance. The cottage patient will often complain of his food while gaining five pounds a week.

Hospital Equipment.

These institutions should be hospitals in every sense of the word. They will handle acute appendices, fractures, labor cases, rib resections and much minor surgery. There will be hundreds of teeth to extract and many throat and larynx cases. It is therefore essential to have a thoroughly equipped and well-lighted operating room, a nose and throat room, a dental room with complete equipment, and an up-to-date X-ray outfit. This last should not be placed in the basement, a favorite place chosen, or rather allotted. Of vital importance is the laboratory, not only for routine but for special investigations.

With this equipment the medical staff should be adequately officered. The resident staff should consist of at least 1 hospital graduate to every 60 or 70 patients. One to every 60 will give each man enough to do and allow time for research and study.

If the institution is large enough a resident pathologist is essential as a working stimulus necessary to proper and constructive medical effort. It is equally as essential and desirable to have a visiting staff chosen from well-qualified local physicians. Under their direction and with their help a high standard of medical work should be established and maintained. Such a visiting staff should consist of men skilled in diseases of the chest, a surgeon, a laryngologist, a dentist, Röntgenographer, and, if children are admitted, a pediatrician.

Nursing Staff and Orderlies.

Upon the nursing staff rests the brunt of the real care of the patients. A shortage of nurses always means dissatisfaction and complaints. Here once more the different classes must be considered. At the Boston sanatorium, in a 40-bed ward of sick patients, we find that 3 graduate nurses and 3 male orderlies are required for day duty. On the other hand, in an open ward of 36 patients of the third class, 1 nurse and 1 orderly are sufficient, and for 100 cottage cases, 2 nurses.

In all, for a bed capacity of 420, we allow 36 nurses and 12 orderlies. In considering the care of the patients it is imperative, even for the advanced cases, that some effort be made to divert their attention from their many symptoms. Motion pictures are much appreciated by those who can attend; a circulating library is a great help. Many of the ambulatory patients may do light work.

Satisfaction to Patients from Employment.

Among our cottage patients we find good orderly material. They give us much more satisfactory service than our former non-patient orderlies, and are carried on our pay roll at the regular orderly wage. There are also a few chore-men jobs, and work for the women as ward maids.

Three years ago we established under medical supervision an occupational therapy department. At present two special trained aides are in charge of a very complete workshop, and about sixty patients take advantage of this, working from one to four hours a day, and undoubtedly get an immense amount of satisfaction out of their employment in addition to the financial returns for their finished products.

Of great value to any institution are the chaplains, and while they are essential to the spiritual welfare of the patients, they are also often an infinite help to the doctors in smoothing out the numerous difficult and sometimes turbulent situations that are in all hospitals.

Prime Function, Isolation. Cure often accomplished.

Finally, while the prime function of these city institutions is isolation and nursing care of the hopeless cases, there should be better realization, not only by the people at large but by the practicing physicians, that a great many of our patients are wonderfully benefited, and leave us with their lung lesions arrested.

SOME CONTRIBUTIONS OF VOLUNTARY AGENCIES TOWARD THE CONTROL OF TUBERCULOSIS IN THE COMMONWEALTH.

By Robert V. Spencer, Executive Secretary, Massachusetts Tuberculosis League.

THE outstanding feature of voluntary anti-tuberculosis work in Massachusetts is the case-finding campaign in rural territory which is being conducted principally by county associations in co-operation with State, and in some cases, county examination service. This work which was started jointly by the Massachusetts Tuberculosis League and the Barnstable County commissioners three years ago as an experimental demonstration is now rapidly developing into a State-wide intensive search for unknown cases. These clinics are now being systematically conducted by the three public health associations of the Connecticut valley, the Southern Worcester Public Health Association, and in scattering towns of northern Middlesex and Bristol counties, through service provided by the State League. Field nurses are now employed by the Berkshire and Norfolk Associations to inaugurate the work in these counties.

Voluntary Clinics and Expert Examination of Malnourished Children.

The work is done principally with school children. The field nurses go where the clinics are desired by local voluntary committees, school and health authorities, and the State Department of Public Health. They assist the local school nurses in weighing and measuring their school children and computing the percentages of children underweight. Those found to be seriously malnourished, and especially those from homes having a tubercular history, are culled out, and permission of the parents for a thorough examination by experts is asked. The State and local nurses assist at these clinics, and the examination service is provided by the State Department of Public Health through the medical staffs of the State sanatoria, assisted sometimes by Dr. Remick, the chief of the Division of Tuberculosis, and by local physicians and the superintendent of the county tuberculosis hospital, where there is one. At these clinics usually from fifteen to forty children are examined, and at times a few adults.

The results obtained from these examinations amply justify the method of selection by weight standards. No clinic has yet been reported to the State League office which has not discovered children needing most careful follow-up, and it is not uncommon to find children under fifteen years of age who are actively tuberculous.

NON-TUBERCULAR DEFECTS DISCOVERED.

In addition to the cases found to be actively and suspiciously tuberculous, sufficient non-tubercular defects are discovered, such as diseased glands, tonsils, adenoids and hearts, alone to justify the work. In many towns where these clinics are held there are no regular school physicians, as the doctors so employed are paid a mere honorarium in order that the law may be covered. These clinics thus provide the only thorough physical examinations which the children receive.

As something more than a mere by-product of these clinics, a basis for scientific nutrition work is provided. There and then most of the physical causes of malnourishment are discovered. Following the clinics, at which the parents are invited to be present, the nurses visit the homes, find out as much as possible concerning the children's health habits, and seek correction through improved home control. If operations or institutional treatment are needed they also attempt to see that these are provided.

The fact that 30 per cent of children seven years of age and 60 per cent of adults react to the skin test for infection indicates that there are still enough unknown tuberculosis carriers to seed down practically every community. The number of children showing activation discovered at these clinics, coupled with the fact that the great majority of cases in Massachusetts are still first diagnosed in the moderately advanced or far advanced stages, also indicate that there is no doubt but that most cases to be discovered in the truly incipient stages must be found in childhood.

PREVENTIVE WORK: THROUGH SUMMER CAMPS, ETC.

Voluntary anti-tuberculosis work of next importance in Massachusetts is the effort of the city associations of the League to build up the resistance of delicate children, and thus to head off at its source the ever-recurring crop of new cases. This work is being done through summer health camps, preventoria, nutrition classes, and, to some extent, through the provision of milk for the children of the tuberculous.

Of these methods the summer health camp is fast becoming the most popular and is most efficacious. Eight such summer health camps and two preventoria are being conducted this summer in different parts of the State. The children are selected for these camps through clinics similar to those already described in this article. No children are, of course, accepted who would be in danger of imparting infection, or who are so sick that they need institutional care. Neither are any usually accepted until their physical defects, such as diseased tonsils, adenoids and carious teeth, are remedied so that the children are "free to gain." These camps are under constant and careful medical supervision, and the children are closely studied, especially if they fail to make the expected gain in weight. Food, rest and recreation are controlled. Overfatigue is especially avoided, and midmorning and afternoon milk lunches are provided. The gain of the children is usually phenomenal. The stay is from two to eight weeks, according to the progress made by the child.

The attempt is made to interest the parents in the health problems of their children. In this way the educational value of the camp usually exceeds the actual physical change in the children during the period of this stay. The children are usually returned to school much improved in physical condition, and here they are followed during the year by the school physicians and nurses.

Educational Effort: The Modern Health Crusade.

In addition to work for the discovery of early cases of tuberculosis while still in the curable stages of the disease and the building up of delicate children, the voluntary anti-tuberculosis movement is interested in educational effort which will have a tendency to reduce the liability of all children to disease. The chief contribution of voluntary anti-tuberculosis effort along this line has been the Modern Health Crusade.

This movement, which during the past three years has enrolled 300,000 children in Massachusetts and 6,000,000 in the entire country, does not need an introduction to the readers of the "Commonhealth." This most popular and effective method for stimulating the formation of good health habits in children, which was originated by the National Tuberculosis Association and is promoted by it through its State and local associations, provides a good illustration of how voluntary work helps to stimulate and to build up official work along desirable lines.

The Crusade has been carried on almost exclusively through the schools of the country and by teachers and school nurses. It has nearly always been introduced voluntarily by the teachers and nurses themselves, and the anti-tuberculosis or public health committee has provided the materials and awards free, except in a few instances where they have been purchased by the school committee. The voluntary organizations also to some extent provide special skilled workers to stimulate interest in the work.

In some States the Crusade has been officially adopted as a part of the required course of study, but the writer is one of those who would regret such a move in Massachusetts. School work is usually best done when the teacher really wants to do it. Anything done from compulsion lacks the enthusiasm necessary to success with children. Even though but a part of the schools use the Crusade, it is usually popular both with pupils and teachers, and its influence carried by enthusiastic users is extending into every up-to-date school system. No school system which is at all progressive can longer afford to ignore health habit formation as one of its chief responsibilities and activities.

VOLUNTARY PROGRAM A SUPPLEMENT TO OFFICIAL PROGRAM.

The voluntary program is always intended to supplement the official program and to be conducted in co-operation with it. In so far as their slender means will allow, voluntary anti-tuberculosis agencies in Massachusetts stand ready, as they always have stood, to assist wherever their help is most needed, and to abandon any activity whenever its need has ceased to exist or official agencies are able and ready to take it over.

This article has made no effort to do justice to the place of voluntary agencies in the history of the anti-tuberculosis movement in Massachusetts. It has not even attempted to do justice to their present programs. It has simply attempted to outline some of the more important contributions which voluntary agencies are making to the great fight against disease in the Commonwealth.

THE PREVENTORIUM.

By John B. Hawes, 2d, M.D., President, Boston Tuberculosis Association.

PREVENTION is the watchword of modern medicine. We are trying in every way possible, not only to discover disease in its incipiency, but to do away with those conditions of working, sleeping, eating and living that are now factors in causing sickness and disease. Health work in factories, nutrition classes, life extension institutes, yearly physical examinations, mothercraft, the Children's Health Crusade are all movements in this direction. To this last we can now add the comparatively recently coined word, "preventorium."

What is a Preventorium?

Now, in answer to that natural question, "What is a preventorium?" the name is or should be more or less self-explanatory. It is a place where *prevention* is carried on. In this case it is where the prevention of tuberculosis is being carried on. By means of preventoria we are going a step further than we ever have before in our tuberculosis campaign, in that we are looking ahead not merely one or two years toward the cure and arrest of a tuberculous process in the lungs of a given patient, but instead we are looking forward ten, fifteen or twenty years toward the development of strong and healthy specimens of men and women. This is a goal worth striving for. Up to the present time we have contented ourselves with two things in handling the tuberculosis problem: first, by means of sanatoria we are nursing back to health men and women with curable tuberculosis; second, by means of hospitals for the advanced cases of consumption we are doing the best we can to restore their health, but above all we are trying to keep them from infecting others, particularly children.

Protection of Children of Consumptives.

The preventorium goes further than this. The consumptives of the future to a very great extent come from a perfectly definite and well-known group. This group consists of those children, boys and girls under fifteen years of age, coming from families in which there is an adult case of consumption. That our future consumptives will be largely drawn from this group is not guesswork but a definite fact. The great majority of those children who have thus been exposed to the germs of tuberculosis have what we call a "tuberculous infection" and will react to delicate tuberculin tests. Fortunately at this stage tuberculous infection does *not* mean tuberculous disease, but unfortunately unless we do something about it, later on in far too many cases it *will* mean tuberculous disease or consumption. Although many of these children do not look sickly or debilitated, and many of them have rosy cheeks and are well nourished, the fact remains, nevertheless, as I said before, that it is from this group of children who have already received more than their share of tuberculous infection that the consumptives of the future will be numbered. A preventorium, then, is an institution, preferably located within easy access of the masses of population, where these children who have been exposed to tuberculosis from some other member of their family can go for as long as is necessary, and so build up their resistance and so learn the lessons of health and hygiene that they can control the tuberculous infection now in their systems and prevent it from developing into active consumption later on.

DEVELOPMENT OF THE PREVENTORIA.

Preventoria are building up all over the country. Usually, such an institution starts in a modest way with a little camp simply equipped and open only during the summer months. A preventorium often develops from the "day camp" with which we are all familiar. The trouble with the day camp is perfectly obvious, namely, that the good which such a camp does to children during the day is too often counteracted by the harm which is done them in their homes by being exposed to infection during the remainder of the twenty-four hours. The next step, then, is to change the summer day camp into a summer day and night camp. After such a camp has been in operation day and night for one or two seasons it is usually not very difficult to persuade the public that it is a good investment and that the camp should be carried on all the year round. At this stage it becomes a true preventorium.

THE PRENDERGAST PREVENTORIUM — BOSTON'S DAY AND NIGHT CAMP.

Boston is now approaching the second stage of this evolution as far as a preventorium is concerned. In May of this year the Boston Tuberculosis Association opened the Prendergast Preventorium as a day and night camp for the summer months, and very probably longer. Here at our delightful location, consisting of some thirty acres in the woods of Mattapan, we have buildings admirably adapted for the purpose, and since early in May we have taken care of a group of twenty children coming from the tenements and crowded portions of this city, each one of whom has been markedly exposed to tuberculosis, while in addition each child reacts to a skin tuberculin test, and in the majority of instances shows by X-ray and clinical evidence signs of bronchial gland enlargement, which glands are probably so enlarged because of tuberculosis. Any one visiting this camp would believe that these children are not sick. Nor, indeed, are they sick children, but they are children who ten or fifteen years later will be the pale-faced consumptives of the future.

What Other States are doing.

Boston and Massachusetts have been leaders in the anti-tuberculosis campaign of this country. The first State sanatorium for consumptives in this country was our present Rutland State Sanatorium, while our first open-air school for children was established in Parker Hill of this city. Unfortunately, however, we can no longer claim the lead in this newest movement to control and prevent tuberculosis. Rhode Island, Maryland, Michigan, Illinois and Toronto, Can., are each ahead of us and well in the lead as far as the preventorium is concerned. At Toronto, Can., in the country district outside of the city and yet within easy reach by trolley, for a number of years there has been a beautiful institution which now houses nearly 200 children coming from this above-mentioned group. This institution is financed and supported by the Canadian National Association, and is known as The Imperial Order of the Daughters of the Empire Preventorium. At Detroit, Mich., there is a wonderful group of buildings where a large number of children are given the best of care; in Farmingdale, Md., there is a similar institution, while in the near-by city of Providence, R. I., starting from the very humblest and simplest of beginnings, there is now a flourishing preventorium.

We hope by our work at the Prendergast Preventorium to demonstrate to the city of Boston that there is a real need for such an institution as this, and that it is the next and most logical step in our campaign to control tuberculosis. We hope and firmly believe that the citizens of this city will agree with us in this, and will show their approval by giving us the necessary funds to maintain it as an all-year-round institution instead of merely for the summer months. Likewise we shall keep detailed records of initial expenses and the running cost, the question of nutrition and the proper diet, and many other problems which we are meeting every day will be noted so that other communities undertaking this work may profit by our mistakes and by what we have learned.

In the near future I hope to see not only one or two but many such institutions scattered through the Commonwealth of Massachusetts.

CERTAIN FUNDAMENTALS IN EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.[1]

By Lawrason Brown, M.D., Saranac Lake, N. Y.

FROM time to time it seems wise to pause to consider, to take stock, so to speak, of the results of our efforts along certain lines in medicine. I shall devote myself largely to a brief summary of some of our work at Trudeau, and not attempt a complete discussion of the subject, which would be impossible in the limits of this article.

The Problem from the Point of View of the General Practitioner.

The diagnosis of pulmonary tuberculosis to-day is at once easier and more difficult than formerly, — easier because laboratory facilities are much more readily available to every physician; more difficult because the public demands an earlier and more exact diagnosis. In general, we may be called on, in any case in which suspicion of pulmonary tuberculosis has been aroused, to answer four questions: —

1. Does or does not the patient have pulmonary tuberculosis? In doing this we must seek to learn whether he has: (*a*) positive clinical pulmonary tuberculosis; (*b*) suspected pulmonary tuberculosis; (*c*) demonstrable non-clinical pulmonary tuberculosis; or (*d*) no pulmonary tuberculosis at all.

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[1] Reprinted by courtesy of the Journal of the American Medical Association.

2. What must be done? Here we must decide among: (*a*) definite prolonged treatment; (*b*) treatment for three months; or (*c*) a brief exercise test, and, if satisfactory, a return at once to work.

3. If prolonged treatment is required, what must be recommended? This depends on several factors: (*a*) the financial condition of the family; (*b*) the stage of disease; (*c*) the temperament of the patient. After considering each of these, we may decide on: (*a*) home treatment; (*b*) class treatment; (*c*) sanatorium treatment; or (*d*) hospital treatment.

4. What shall we tell the patient? Is it wiser to blurt out the whole truth at once or to break the diagnosis to him gradually?

WHEN TO SUSPECT THE PRESENCE OF PULMONARY TUBERCULOSIS.

Pulmonary tuberculosis should be looked for whenever a patient gives a history of —

1. *Spitting Blood.* — In any amount, no matter how little, blood spitting should suggest pulmonary tuberculosis. Bleeding from the gums and nose should be excluded, but blood from the pharynx, from the base of the tongue, or especially from the larynx, is exceedingly rare.

2. *Pleurisy with Effusion.* — This can, of course, be due to other causes than tuberculosis; but the burden of proof should rest on him who says it is due to other causes. Careful physical and Röntgen-ray examinations, as well as insistent and persistent inquiries for sputum, should be made.

3. *Cough.* — Cough immediately suggests pulmonary involvement, and if a so-called cold, or indeed a self-evident cold that starts as a rhinitis and passes gradually into a bronchitis, persists over two or three weeks, we should turn our thoughts to a pulmonary involvement. In fact, in any cough we should allow our thoughts to picture the most serious cause, though it may be due to cigarette smoking, to a chronic nasopharyngitis, or to involvement of some of the sinuses. The last-named affection was the cause of many mistaken diagnoses in the late war.

4. *Fatigue, etc.* — When a patient complains of fatigue at the end of the day, a loss of weight, possibly of slight flushing, we should always think of a pulmonary tuberculosis that has as yet not attacked the bronchi.

5. *Fistula in Ano.* — The following is no unusual history: The

patient was a famous athlete, a director of athletics in the army in France. He consulted a physician in a small Pennsylvania town for an ischiorectal abscess. The abscess was treated and the lungs ignored. When finally the pulmonary tuberculosis was diagnosed, it was in an advanced stage.

6. *Exposure to Infection.* — The occurrence of tuberculosis within the family, unless there is direct contact, is assuming less and less importance. Contact, repeated contact, prolonged contact, whether in the family circle or outside it, is of great importance, and should under suspicious circumstances demand careful study.

I should like to emphasize that we remember in every case that comes to the office the great frequency of two diseases that spare neither rich nor poor, devotee nor sinner, young nor old. I refer to syphilis and tuberculosis. It would be wise to write on the walls of the consulting room a legend which would run: "Remember under all circumstances the great frequency of syphilis and tuberculosis." Diagnosis in many instances depends largely on recalling the possibility of the occurrence of these two diseases.

THE METHOD OF ATTACK.

Our attention having been drawn to the lungs, we must now try to answer to ourselves the question: Is pulmonary tuberculosis present?

A. *History.* — I take it for granted that we have taken a more or less complete history. Two points should be carefully inquired for, — the occurrence of blood spitting and of pleurisy, especially pleurisy with effusion. Exposure to infection must be noted.

B. *Physical Examination.*— The temperature, pulse rate, weight, height, condition of the nails, and general condition having been noted, the patient should be stripped to the waist. This takes considerable time; but the diagnosis of pulmonary tuberculosis takes time, and we must spend it if we hope to reach a satisfactory diagnosis in certain cases. Inspection and palpation reveal lagging or lessened movement of a side, muscular contraction or relaxation, the increase or decrease of vocal fremitus. These signs, however, are merely suggestive. Percussion is less important than auscultation. In many early cases the changes are so slight that differences in percussion are often of no help. A slightly higher pitched note can often be obtained in normal chests above the second rib. There is agreement among many workers that the auscultatory data are by far the most important in the physical diagnosis of pulmonary tuberculosis. It may be recalled that there are two schools, — one holding that pulmonary tuberculosis always arises at the pulmonary root and extends usually toward the apex; the second, that it begins much more peripherally. The bearing of these statements on the earliest abnormal physical signs becomes clearly evident when we pause to think. If the disease arises deep in the lung, we are more likely to get comparatively early changes in breath sounds, broncho-vesicular breathing and increase in vocal resonance as well as change on percussion. With a peripheral origin, the breathing may become suppressed or remain normal. In the latter case, râles may be the first manifestation of pulmonary change. In any case, they are among the easiest of all changes to detect if one knows how to produce them. The question of acute hearing, of an ear trained for râles, is largely humbug, for I am sure that any one with ordinary hearing can detect râles in an early case of pulmonary tuberculosis if he knows the technic. Even Laënnec, who gave us the stethoscope, recognized that râles could be better heard after a cough. Indeed, sometimes râles can be heard only after what we call an expiratory cough. This is best illustrated: The patient is told to breathe out slowly one-half or three quarters of the air in his lungs, save enough air to cough with, and then to cough and immediately to take a fairly full, fairly rapid inspiration. In all coughing one should see that the thoracic muscles are completely relaxed and that the cough is neither violent nor noisy, for otherwise râles, though present, may escape detection. Particular attention should be paid to the region above the second rib and third vertebral spine. When these areas are free of disease and the abnormal physical signs are confined to one or both bases, the burden of proof is on him who diagnoses pulmonary tuberculosis. It can occur only at the base, but rarely does. The moderately coarse râle is the most frequent râle in pulmonary tuberculosis, and any one can easily and quickly learn how to produce it and to recognize it. I might add that it is significant only when heard above the second rib and third vertebral spine.

C. *The Röntgen-ray Examination.* — Slowly but surely do we build our foundations in medicine. Had some noted observer imparted to me in 1900 the fact that my old teachers, Dr. Trudeau and

Dr. Osler, could not detect the presence of pulmonary tuberculosis by physical signs when it had already covered a considerable area of the lung, I might have politely but most certainly would have vehemently denied the assertion. But such is the fact. Even Dr. Trudeau knew that in certain cases he could find tubercle bacilli in the sputum but detect no definite abnormal physical signs. How often, one may ask, do such conditions occur? In so many in my experience that I never exclude pulmonary tuberculosis in any suspicious case until I see the Röntgen-ray plates. Some place the figures at from 5 to 10 per cent. Fortunately, pulmonary tuberculosis usually quickly affects the periphery of the lung, where it can be detected by physical examination. In no small percentage the disease begins deep within the lung and gradually works toward the coastal surface. One day we listen to a lung that is almost normal, and a few days later a large area is covered with râles. The case passes at a bound from a state of incipience to one of advanced tuberculosis. For these reasons I believe that stereoscopic plates are necessary in the diagnosis of pulmonary tuberculosis if we wish to avoid an uncomfortably large percentage of errors.

D. *Sputum Examination.* — I have left until last the most important examination of all. I refer to the sputum. With the large number of State, county and municipal laboratories where free examinations of sputum are made, we are fast approaching the time when failure to suggest or to make a sputum examination will be looked on as malpractice. One should not be satisfied with a single examination. If it is positive, it should be checked up; if negative, the test should be repeated many times. How many bacilli make a positive diagnosis certain? I believe that three or four are necessary to exclude all error, but in many instances in which only one bacillus has been found at first, on later examinations increased numbers were repeatedly found. Every other test, every other examination, may be more or less closely simulated; but tubercle bacilli in the sputum on repeated examinations mean only one thing, an ulcerative tuberculous process somewhere in the respiratory tract. One should not be misled, let me repeat again, by negative sputum examinations. One definitely positive specimen is worth fifty negative reports. One should not accept a statement from the patient that he has no sputum, but should insist that he bring some of the mucus or phlegm that he raises in the morning.

EVALUATION OF DATA.

The evaluation of data, the application of common sense to medical facts, is not always an easy matter. I shall possibly be somewhat dogmatic, but my dogmatism is based on some experience and many errors, which we have tried to correct and avoid. We may roughly group all cases that fall under suspicion of being pulmonary tuberculosis into four groups: (1) diagnosis negative; (2) diagnosis unwarranted; (3) suspected; and (4) demonstrable pulmonary tuberculosis. The last group we divide into non-clinical and clinical. The last-mentioned group we separate into active and inactive groups. Among the many facts gleaned from history and examinations, five data have come to be considered essential in the diagnosis of pulmonary tuberculosis. They are the occurrence of (1) hemoptysis and of (2) pleurisy with effusion; of (3) moderately coarse râles above the level of the second rib and third vertebral spine; of (4) a parenchymatous Röntgen-ray lesion above the second rib and third vertebral spine; and finally of (5) tubercle bacilli in the sputum (and feces).

Of all these, of course, the occurrence of tubercle bacilli is by far the most important and is the only evidence that can be sworn to as proof positive of tuberculosis. Next I would place a definite parenchymatous Röntgen-ray lesion, situated above the second rib and third vertebral spine. Closely following this, in my estimation, are definite moderately coarse râles. If I may digress for a moment I would like to say that I classify adventitious pulmonary sounds in regard to their probable place of origin, passing from within outward, as follows: (1) rhonchi or sonorous and sibilant râles; (2) coarse râles — moist, some would call them; (3) moderately coarse râles; (4) fine râles; (5) crepitant râles (rarely heard in pulmonary tuberculosis and indicative always of tuberculous pneumonia or broncho-pneumonia); and (6) pleural friction sounds. The usual râle in pulmonary tuberculosis is, following this classification, the moderately coarse, heard in the earlier stage only during the inspiration that follows the expiratory cough which I have mentioned. Later on it can be heard following any cough that is not too hard and not too noisy. Later still it is plainly evident on ordinary breathing; but when it occurs under this condition the case has always, in my experience, passed the incipient, or, as we shall soon call it, the minimal stage of pulmonary tuberculosis. I refer, let me say again, only to râles occurring above the second rib and third vertebral spine. I do not imply that pulmonary tuberculosis cannot produce râles elsewhere, but it is a safe rule to conclude that moderately coarse râles above the second rib and third vertebral spine are due to pulmonary tuberculosis, while those occurring elsewhere should be considered as due to pulmonary tuberculosis only when other data confirm such a diagnosis.

In short, râles at a base should be considered as due to non-tuberculous conditions until proved to be tuberculous, while those at an apex must be held to be tuberculous until proved otherwise. Such râles at an apex with a perfectly normal Röntgenogram are in the rarest instances in my experience due to pulmonary tuberculosis. But it is necessary to be sure about the technic and the interpretation of the Röntgenogram. Trailing these data come hemoptysis and pleurisy with effusion. All of us are aware that hemoptysis occurs in other conditions than pulmonary tuberculosis. None of us, I hope, have ever taken down a textbook of medicine, as I did one night in a hall bedroom near the Boston City Hospital, to try to prove that the blood I myself had just spat was due to some other cause. An hemoptysis without discoverable cause, especially when the patient has had a slight cough, a "cold" he may term it, and when he is a little under par, is a symptom that points definitely to a positive diagnosis of pulmonary tuberculosis. If the physical signs in a week or two are negative, one should study the lungs with stereoscopic plates and search the sputum diligently.

I can never speak of pleurisy with effusion without having my mind wander back to Boston, where the best work on this subject has been done. I refer to the work of Henry I. Bowditch, G. M. Garland, Vincent Y. Bowditch, Richard Cabot and others. Pleurisy with effusion is the last of the five primary diagnosis data. It may, of course, be due to other causes than pulmonary tuberculosis, but I would urge that in any case of idiopathic pleurisy with effusion, one should spare no efforts to exclude pulmonary tuberculosis. As soon as the fluid is absorbed, Röntgen-ray studies should be made, and one should base his advice on them as well as on the physical examination.

Let me, then, repeat the five cardinal data in the diagnosis of pulmonary tuberculosis in the order of their importance: (1) tubercle bacilli; (2) and (3) moderately coarse râles and a parenchymatous Röntgen-ray lesion above the second rib and third vertebral spine; (4) hemoptysis; and (5) pleurisy with effusion.

In order to exclude pulmonary tuberculosis, to make a negative diagnosis, we believe that all five of these data must be absent. If either hemoptysis or pleurisy with effusion occurs alone, and the other four data are lacking, a diagnosis of suspected pulmonary tuberculosis should be made. If, perchance, Röntgen-ray examination discloses a parenchymatous Röntgen-ray lesion above the second rib and third vertebral spine, in a patient without symptoms at present, a diagnosis of demonstrable, non-clinical pulmonary tuberculosis can be made. We reserve the term "unwarranted" for the cases in which we cannot obtain for one reason or another sufficient information on these five points.

For more than twenty years we have used the subcutaneous tuberculin test and have encountered no untoward results of any moment. When I pause to think to-day of the chances we ran in giving the test to many patients with extensive pulmonary tuberculosis but few physical signs, I am convinced that, given as we give it to-day, the tuberculin test is never harmful. We use it only in patients with doubtful or slight parenchymatous Röntgen-ray lesions, in whom other sufficient data are lacking. Should the test prove to be negative, we return the patient to his home and work, telling him that if he should ever wish to re-enter the institution we will take him in at once. So far no such patient has ever applied for readmission.[1] Should he react, his lungs are carefully gone over from day to day and Röntgen-ray studies made during the height of the reaction. If both prove negative, we conclude that some other focus than those under study in the lungs caused the reaction, or that the pulmonary lesion is at least not active. If either physical signs or the parenchymatous Röntgen-ray lesion shows an increase, we feel that in all probability the pulmonary lesion is not wholly inactive.

THE DIAGNOSIS OF ACTIVITY.

The question of activity of a tuberculous pulmonary focus has long concerned students of this disease, and at the outset of the late war it assumed a most important place, as no man with active pulmonary tuberculosis could with any degree of safety be drafted into the army. I would like again to pay tribute to Colonel Bushnell, whose wide experience and sound judgment proved of such great value to his country at that time. The army authorities held that, in general, râles due to tuberculous disease indicated an active process. It seems to me that they were correct; for, considering the violent exercise that all men were subjected to in the course of training, such an individual, with few exceptions, would show signs of an active relapse.

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[1] Brown, Lawrason, and Heise, F. H.: On Twenty-Four Years' Experience with the Subcutaneous Tuberculin Test, Am. Rev. Tuberc. 4: 254 (June) 1920.

With our civilian practice to-day, however, the matter is very different. All of us who work much with pulmonary tuberculosis realize that in the vast majority of cases the ultimate outcome never goes beyond an arrest of the disease. Most of us who have suffered once from pulmonary tuberculosis are, in Dr. Trudeau's words, "lame ducks." But it is surprising what an amount of work such persons can accomplish when they live within their limitations. Most of our patients will be returned to us after training in some sanatorium in this condition of arrest. They would be considered in the army as active cases; but for us, if they can live properly, they can be looked on as quiescent, or only potentially active. As the disease is held in abeyance more and more frequently, an increasing number of such cases fall under our care.

When must we say that the disease is again active and needs rigorous treatment? As a matter of fact, we must decide this question for every patient with pulmonary tuberculosis that consults us. As Trudeau we look on focal activity, or, as we like to call it, pathologic activity, as that stage in a tuberculous process in which some change is taking place either for better or for worse. If one should criticize us and say that activity indicates only progression or advancement of disease, then we will reply that pathologic change includes activity and retroactivity. Pathologic activity always, of course, precedes clinical activity; but how soon clinical follows pathologic activity is not easy to say. Neither pathologic nor clinical activity can be correlated with physical signs. The occurrence of tubercle bacilli in the sputum indicates pathologic activity possibly in 90 per cent of all cases, and the presence of elastic tissue in 100 per cent. No other laboratory test is of any value in ordinary practice in the determination of activity, and all of us have known of many cases of pulmonary tuberculosis which for years have shown continuously or intermittently tubercle bacilli in the sputum, and yet have manifested no signs of clinical activity. The Röntgen-ray pictures when skilfully taken and interpreted may help us considerably, and pathologically active cases, we feel, show mottling with ill-defined edges, "cottony" in appearance, blending gradually into the surrounding normal lung picture. Clinical activity which concerns us chiefly is largely dependent on the presence of symptoms. These we divide according to their importance in activity into two groups, — a major, including fever, rapid pulse, pleurisy, hemoptysis, lack of endurance, loss of weight, and night sweats; and a minor, including chills, cough and expectoration. Cough and expectoration have slight bearing on activity, and the presence of tubercle bacilli in an otherwise arrested case by no means indicates clinical activity.

THE MINIMAL REQUIREMENTS FOR A POSITIVE DIAGNOSIS.

The minimal requirements for a positive diagnosis of pulmonary tuberculosis have even in my short career varied widely. In 1900 we strove to convince men of the danger of waiting to find tubercle bacilli in the sputum before making a diagnosis of pulmonary tuberculosis, and now we find many French authorities stating that without tubercle bacilli a positive diagnosis of pulmonary tuberculosis cannot be made. It goes without saying that the presence of tubercle bacilli in the sputum settles the diagnosis. But many patients have tubercle bacilli only in the more advanced stages of the disease. I have already stated that the occurrence of either hemoptysis without cause or of idiopathic pleurisy with effusion makes a diagnosis of suspected pulmonary tuberculosis necessary. The presence of a few constitutional or localizing symptoms with slight physical signs, even if no moderately coarse râles are present, when confirmatory Röntgen-ray changes occur, renders a positive diagnosis advisable. Such symptoms, with inconstant moderately coarse râles and no confirmatory Röntgen-ray findings, are insufficient for a positive diagnosis. The presence of at least one of the five cardinal diagnostic points, as I have already said, is always necessary for a positive diagnosis.

When the diagnosis has been made, what must be done? Has the patient minimal or advanced or far advanced pulmonary tuberculosis? From what I have said, it can quickly be realized that it is necessary to diagnose at once the stage in which the patient is, and furthermore that it cannot be done accurately in all cases without the aid of the Röntgen ray. The American Sanatorium Association has a committee at present at work on this subject, which we hope will be settled during the coming year. The consensus of opinion is that Röntgenograms and physical signs must be considered in the diagnosis of the stage of all cases. If the patient has moderately advanced or far advanced tuberculosis, definite prolonged treatment is necessary. If only suspected tuberculosis, three months' treatment may give us the results we wish. If the patient has only demonstrable, non-clinical pulmonary tuberculosis, we usually increase his exercise very rapidly and return him in a few weeks to his work, telling him, of course, of the dangers he runs if he overdoes. If in a minimal case the patient responds to a subcutaneous dose of tuberculin with a general reaction and with no focal changes, we treat him in a similar manner.

If prolonged treatment is required, what must be recommended? I need not discuss this in detail. The financial condition of the family is, of course, the first and most important factor. Other things being equal, the stage of the disease may determine whether we advise sanatorium or hospital. The temperament of the patient may help us to decide between home and class treatment and treatment in an institution. The education of the patient is of paramount importance and has great weight in determining the disposition of his case. Only second to this is the education of his family.

Finally, we must decide while we are making the diagnosis what we shall tell the patient. Frankness, even though tempered with kindness, is a great shock to many patients, but is often less trying in the end than uncertainty.

SUMMARY.

1. The diagnosis of pulmonary tuberculosis is in most instances more easily made to-day than formerly, but in the remainder such a diagnosis may tax the ingenuity of the cleverest physician.

2. The diagnosis of pulmonary tuberculosis is not complete with the determination only of the presence of the disease, but must include also opinions about its activity, stage and place and length of treatment.

3. Pulmonary tuberculosis should be suspected in every case of blood spitting, pleurisy with effusion, persistent cough, undue fatigue,

loss of weight, fistula in ano, or prolonged exposure to infection, whether in childhood or in adult life.

4. It should be remembered that syphilis and tuberculosis respect no one.

5. He who fails on examination to strip the patient to the waist may injure not only the patient but himself as well.

6. He who would diagnose pulmonary tuberculosis early must be willing to pay for it in time and care and patience.

7. Auscultation is vastly more helpful to him who is not fully proficient in the elicitation of physical signs than are percussion and inspection.

8. The detection of râles is the most important factor in the physical diagnosis of early pulmonary tuberculosis.

9. Failure to detect moderately coarse râles in pulmonary tuberculosis is due more often to ignorance of how to produce them rather than to inability to hear them.

10. In early stages of the disease, râles are to be heard only after a simple or an expiratory cough.

11. Persistent abnormal signs above the second rib and third vertebral spine, at one or at possibly both apexes, demand a diagnosis of pulmonary tuberculosis until it can be disproved. Conversely, such signs at one or both bases indicates non-tuberculous disease until disproved.

12. Stereoscopic Röntgenograms, carefully taken and carefully interpreted, may reveal slight or extensive pulmonary tuberculosis which by ordinary methods of physical examination may escape detection.

13. In any doubtful case, pulmonary tuberculosis should never be excluded without careful Röntgen-ray study.

14. The presence of three or four or more tubercle bacilli in the sputum is the surest proof of the presence of tuberculosis in the respiratory tract.

15. Repeated negative sputum examinations do not exclude pulmonary tuberculosis.

16. It should be borne constantly in mind that any case in which no tubercle bacilli have ever been found may not be tuberculosis, and this fact should be emphasized always when extensive physical signs or a long history is present.

17. Next to tubercle bacilli, the presence of moderately coarse

râles or a parenchymatous Röntgen-ray lesion above the second rib and third vertebral spine is the best evidence of pulmonary tuberculosis.

18. Hemoptysis of a dram or more without heart disease or acute pulmonary infection, and idiopathic pleurisy with effusion, demand a diagnosis of suspected pulmonary tuberculosis and careful study.

19. The five cardinal diagnostic points in pulmonary tuberculosis are tubercle bacilli, moderately coarse râles and a parenchymatous Röntgen-ray lesion above the second rib and third vertebral spine hemoptysis of 1 dram or more, and pleurisy with effusion.

20. At least one or more of these points must be positive before a diagnosis of pulmonary tuberculosis can be made.

21. If all five cardinal diagnostic points are lacking, a negative diagnosis in regard to pulmonary tuberculosis can be made; but in 1 or 2 per cent we may be in error.

22. A negative subcutaneous tuberculin test in an early case enables one to tell the patient that treatment at this time is not necessary.

23. The diagnosis of clinical activity must be based largely if not entirely on symptoms and not on physical signs.

24. Pathologic changes in the lungs can begin before any signs of clinical activity are present and continue long after all have disappeared.

25. Cough and expectoration, and even in certain cases tubercle bacilli in the sputum, are not positive evidence of activity.

26. Finally, one should imagine one's self in the patient's place, give his case the study one would ask for one's self, and not subject him to loss of time, of health and possibly even of life, by hasty conclusions drawn from carelessly collected and insufficiently considered data.

My acknowledgments are due to Dr. Heise, Mr. Sampson and Mr. Petroff, who have worked out many of the points mentioned in this paper.

TUBERCULOUS CHILDREN AND WHAT CAN BE DONE FOR THEM.

BY HENRY D. CHADWICK, M.D., SUPERINTENDENT, WESTFIELD STATE SANATORIUM, WESTFIELD, MASS.

THE clinics that have been conducted the past two years have given much information about the physical condition of the children of school age in the smaller communities.

In the fall of 1920 we examined 146 underweight children in one of the Westfield schools. Of that group 33 per cent were found with enlarged bronchial glands. As to whether they were definitely tuberculous or not would require tuberculin tests and further study. They did, however, have physical signs of juvenile tuberculosis.

During the period of Feb. 1 to Dec. 1, 1920, the Hampden County Tuberculosis Association arranged school clinics in the smaller towns in the county. Two hundred and fifty-one underweight and delicate children were selected by the nurses and teachers, and these were given a physical examination of the chest. Of this number, 19, or 7.6 per cent, were found to have positive signs and symptoms of tuberculosis.

From December, 1921, to June, 1922, we have examined 496 children at the school clinics in Hampden and Hampshire County. Fifty-one, or 10.3 per cent, have been found tuberculous. Combining the numbers examined during the two years we have a total of 747 children, of which 70, or 9 per cent, had signs and symptoms of tuberculosis.

EIGHT TO TEN PER CENT OF UNDERWEIGHT SCHOOL CHILDREN TUBERCULOUS.

I think these figures can be taken as an index of the magnitude of the problem that confronts the public health authorities. It means that from 8 to 10 per cent of the school children who are underweight will be found to have a tuberculous focus of disease that requires special supervision and care. Only a very few of them, however, have the adult form of pulmonary tuberculosis, and therefore only in exceptional cases are they infectious to others. Out of the total number examined only two children attending school were found to have tubercle bacilli in the sputum. The reason for this is that when pulmonary tuberculosis is found in children they are almost always in the advanced stage and too ill to attend school.

TUBERCULOUS TEACHERS THE GREATEST DANGER.

The glandular type of tuberculosis is the one usually found in children of school age. Fortunately it is a form where the bacilli are encapsulated and are not cast off to become a menace to the health of others. Children are in as much or more danger of contracting disease from tuberculous teachers than they are from other pupils. The children would have the glandular or non-infectious form. The teacher would have the pulmonary form, which is the one which spreads disease. To safeguard the school children the teachers should have an annual physical examination. Any who were found to have symptoms of pulmonary tuberculosis should not be permitted to continue teaching.

WHAT CHILDREN SHOULD BE EXAMINED?

The ideal plan would be to have every school child given a thorough physical examination at the beginning of each school year. Under the present conditions, however, this is not possible, but they can all be weighed and measured. To do the most good with the facilities now available, we should select for examination the children who are 10 per cent under weight and all other children, regardless of weight, who appear to be in a subnormal physical condition. Children in the last category will include those who are often absent from school on account of illness; those with frequent colds; those who cough; those who seem listless and tired; those who are retarded; those who are nervous, fretful and irritable, and children whose dispositions undergo noticeable change as the work in the school year goes on; and finally the contact cases, or those who are known to be exposed to tuberculosis in their homes.

WHAT WILL THE EXAMINATIONS REVEAL?

The examinations will classify these children into the following groups: —

1. Those with positive signs and symptoms of tuberculosis. (We found from 8 to 10 per cent.)

2. Those with some signs and symptoms of tuberculosis, but not

enough to justify a definite diagnosis, *i.e.*, suspicious cases. (We placed 27 per cent of 496 children in this group.)

3. Those with diseases other than tuberculosis. The most common defects found in this group are enlarged tonsils, adenoids, goiter, bronchitis and organic heart disease.

4. The negative group in which malnutrition is the most evident condition and no definite disease is found.

Westfield State Sanatorium — Patients at children's ward.

WHAT TREATMENT SHOULD BE CARRIED OUT?

The children in which a definite diagnosis of tuberculosis has been made may be subdivided into two classes: —

Class A. — Those who have good homes and intelligent, co-operative parents.

Class B. — Those who have poor homes and ignorant or careless parents.

Those in either class who have positive sputum or definite pulmonary involvement should be sent to a sanatorium as soon as possible. There were 3 such cases out of 70 tuberculous children, or 4 per cent of those in which a definite diagnosis was made, found in a total of 773 children examined. Tuberculous children should be excluded from school as soon as a diagnosis is made.

As many as possible of the Class B children should be sent to a sanatorium, as home treatment for them would be of little avail.

Of course it must be tried if there is no alternative. Good results may be obtained with the Class A children by home treatment.

Daily Routine for Home Treatment.

Allow the child to sleep in the morning as late as he can. Breakfast should consist of cereal, fruit, if possible, and whatever else may comprise the family meal. Milk should be served with each meal. Mid-morning and mid-afternoon lunches of milk and bread and butter should be given. No other lunches should be allowed. One quart of milk a day should be the minimum allowance for each child. Remember there is no good substitute for milk in the dietary of a child. Candy in small amounts may be permitted if it is taken after meals.

Rest an Important Factor.

No walks exceeding one-half mile per day or any strenuous exercise or play should be permitted. One-half hour before dinner and before supper should be spent resting, either on the porch or in a room with the windows open. After dinner the child should lie down for two hours and try to sleep. If the child is under twelve years old his bedtime should be not later than 7 o'clock.

The temperature should be taken once daily, about 4 p.m. Weigh the child every two weeks and keep a record of temperature and weight. If the temperature is found to be over 99.6, the child should remain in bed until the temperature of the succeeding afternoons shows it to be within normal limits. The more bed treatment is given the quicker will be the cure. At the end of one month, if the child has shown no afternoon temperature above 99.6, and has begun to gain weight, arrangements may be made for attendance at the morning session of school. The afternoon routine should be followed as above, and continue until normal weight has been regained and all symptoms, such as undue fatigue, cough, sweating and nervous irritability, have disappeared. When that time comes, after six months to a year of treatment, then the usual two sessions of school may be resumed. To keep the child well, however, means a rigid adherence to these essentials of good health, — at least ten hours of sleep every night; three good meals daily, with milk as a component part; no lunches of sweets between meals, play in the open air and sunlight.

TREATMENT OF SUSPICIOUS GROUP.

The children in the suspicious group need not be excluded from school. They should be kept under supervision, health habits should be taught them, a diet planned with the emphasis placed upon milk, fresh vegetables and cereal, and on such fruit as can be provided. Physical defects, such as tonsils and adenoids, decayed teeth, eye strain or discharging ears should be attended to promptly. No progress back to health can be expected if handicaps such as these are allowed to remain.

These children should be examined again in two or three months, as some of them will be found to be tuberculous, and they will not respond to treatment until put under more careful routine in which rest is made the more important feature.

THE MENACE OF BOVINE TUBERCULOSIS.

SUMNER COOLIDGE, M.D., SUPERINTENDENT, LAKEVILLE STATE SANATORIUM.

SINCE the discovery of the tubercle bacillus, nearly forty years ago, the campaigners against the disease have experienced all the trying vicissitudes, the disappointments and failures, and the occasional encouragements incident to actual warfare, always amazed and shocked by the ghastly toll of human lives exacted by the insidious enemy in spite of the best organized and best equipped attacking forces that human thought could devise.

As in actual warfare certain events stand out in importance as having special influence on the success or failure of a whole campaign, so in the conflict with tuberculosis we have come to attach special significance to certain bits of knowledge that have come to us from time to time, maybe as startling new discoveries, or, perhaps, as deductions from experience which have become settled convictions.

BASIC FACTS IN REGARD TO TUBERCULOSIS.

Since Koch discovered the tubercle bacillus some of the most important additions to our knowledge on which present methods of attack are based, are —

1. The transmission of the tubercle bacilli from the sputum of the diseased individual to the alimentary or respiratory tract of another.

2. The existence of several types of the tubercle bacillus found in the lower animals, the bovine type being of particular importance.

3. The extreme susceptibility of domestic cattle to the bovine type.

4. The communicability of the bovine type of tuberculosis to human beings.

5. The possible presence of bovine bacilli in the milk, sputum or feces of diseased cattle.

6. The discovery of conclusive evidence that approximately 90 per cent of civilized human adults have been infected with tuberculosis; that at the age of six to seven years 54 per cent are infected; that, including all forms of the disease in children, $33\frac{1}{3}$ per cent of all cases is caused by the bovine type, *i.e.*, by cows' milk used as food.

7. The discovery of several methods of detecting the presence of tubercular infection in man and in cattle, — the so-called tuberculin test.

8. The belief that practically all infections in human beings take place in childhood.

Tuberculosis in Children the most Promising Point of Attack.

The above will suffice to show that the most promising objective in attacking tuberculosis is where it is getting its initial grip on the human race — where we find our race extremely vulnerable to either the bovine or the human type of bacillus, — *i.e.*, in children. The protection of child life from infection with the human type is difficult because of the ignorance and foolishness of those who love the children most. To protect children from the bovine type is practicable, but will never be accomplished until those same ignorant and foolish (though fond) parents rise in their wrath and demand a milk supply that has been produced and handled in a way to make it innocuous to the children who consume it.

The Relation of the Tuberculous Cow to Public Health.

The recent cold-blooded murder of fifty or sixty innocent men and women for no other reason than that they wished to work for the wages offered them, pales into insignificance when compared with the unnecessary slaughter of human beings directly due to milk from tuberculous cattle, which is going on before our eyes all the time. One might call it a continuous performance, and we as a people look upon the two horrible pictures with equal complacency. The former was premeditated, and, if secretly planned, perhaps could not be prevented. The latter is in violation of our knowledge of the danger that exists, and of known methods of averting that danger.

Experience has shown that a large percentage of dairy cattle is infected with tuberculosis, and, although the elimination of infected animals has been going on spasmodically for years, there are comparatively few herds that can be said to be entirely free from infection. Therein lies a menace to human lives. How can that menace be removed?

PASTEURIZATION A SAFEGUARD.

The first step, which would make the public milk supply safe, and which it is possible to accomplish in the immediate future, is the pasteurization of the entire milk supply of the community, except milk from cows known to be free from tuberculosis.

This, though effective when properly done, should be considered a temporary expedient, because the perfect pasteurization of milk depends entirely upon the honesty and skill of human beings, and the accuracy of human inventions, all of which are fallible, and any one of which, failing, spoils pasteurization and tends to discredit the process.

A case in point was presented in a Boston daily a few days since under the startling headline, "Certified Milk found Infected. Tuberculosis Germs Responsible for One Death." In this case it is safe to assume that some individual concerned in the production of certified milk was not honest, and that another was not skillful. Whether the human inventions concerned did their duty accurately does not matter. It would be dreadful, indeed, if all the elements of safety failed at the same time.

PUBLIC SUPERVISION OF TIME AND TEMPERATURE OF PASTEURIZATION.

Even as a temporary expedient pasteurization of the public milk supply should be under public control, or at least under public supervision, the duration of the process and the temperatures used being registered and strictly scrutinized. Community pasteurization plants in farming districts are as practicable as community creameries, and capable of being supervised by the proper authorities.

A temperature of 145° Fahrenheit maintained for thirty minutes kills all disease germs and does not coagulate the albumen of the milk.

Pasteurization accomplishes nothing in the attack upon bovine tuberculosis at its source. It simply makes milk safe for human consumption, while the elimination of infected cattle can be carried on to a successful conclusion.

An infected dairy cow never ceases to be a menace to human life so long as her milk is used as food. The great problem, the solution of which will accomplish more than any other one measure in reducing the tubercular infection of children, is the elimination of the infected dairy cow.

The Tuberculin Test for Identification of Infected Cattle.

The identification of infected cattle is accomplished by one of three methods of applying the so-called tuberculin test, which consists of injecting tuberculin under the skin of the animal (the hypodermic method), between the layers of the skin (the intradermic method), or applying a small quantity of tuberculin to the conjunctiva of the animals to be tested (the ophthalmic method). Recent refinement of technique and long experience have led to the belief that the intradermic test is the most delicate and the most accurate, although the ophthalmic test is still preferred by some.

Problem of Freeing Herds from Tuberculosis.

Assuming, then, that we have a fairly accurate means of identifying infected animals, it may seem a simple procedure to test all dairy cattle and destroy the reactors. Nothing could be farther from the truth.

In the first place, there are not enough dairy cows in New England, known to be free from tubercular infection, to replace the reactors and maintain the required milk supply, if all reactors should be slaughtered at once. Before the sweeping, wholesale destruction of reactors can proceed very far somebody must make a business of raising a generation of cows free from tuberculosis from birth.

I do not mean that the process of elimination should stop, but if a man is honestly trying to clean up his herd he must know where he can purchase replacements *known to be clean,* and if dairymen generally would make it their practice to rear heifer calves in quarantine they would soon establish a recognized source of supply for the purchase of clean dairy cows.

EXPERIENCE OF THE LAKEVILLE STATE SANATORIUM.

The experience of the writer in a serious attempt to establish a tuberculosis-free herd at the Lakeville State Sanatorium may be of interest: —

Seven years ago an initial purchase was made of 33 milch cows which were tested on the day of purchase or were accompanied by a certificate of test which was acceptable to the State Department of Animal Industry. The barn was new and up-to-date, and the whole proposition looked simple.

Three months later another test was made, and 11, just $33\frac{1}{3}$ per cent, reacted. After four years, testing every three months, the proportion of reactors at each test remained about the same. As money was not available in sufficient amount to replace so many reactors, a change was made in the conduct of the situation.

BANG SYSTEM: SEGREGATION OF YOUNG STOCK AT BIRTH.

Finding that we were making no progress by buying adult cows, I determined to buy no more. Provision was made for rearing a clean herd by segregation of the young stock at birth, and all the adult cows, including some reactors, were put into the main barn. A pasteurizer was installed and all the milk produced was pasteurized. By this method, known as the Bang system, calves were taken at birth to the young stock barn, rubbed as dry as possible, given a dose of castor oil, and thereafter fed on pasteurized milk.

There is no traffic between the two barns. Each has its own exclusive herdsman. The milk for the young stock is brought from the pasteurizer directly to a small window through which it is passed, and grain, bedding, hay and ensilage are taken from separate sources of supply. A space of 25 feet separates the yards of the two herds.

PROGRESSIVE RESULTS FROM STRICT QUARANTINE.

Up to the present time a fairly effective quarantine has been maintained, although it seems well-nigh impossible to eliminate possible contamination by rats, cats, birds and flies which frequent all barns.

During two and a half years a few reactors have been taken from the young herd, but they were taken while young, and the loss was slight compared with the sacrifice of adult animals in the prime of their producing careers. We have forty-six survivors in this herd at the present time, nine of which are now milking.

I intend to continue this system for two more years, when I shall have enough milkers in the new herd to supply the needs of the institution. As the number of milkers in the new herd increases, the number in the old herd will be diminished, and when the time comes for the new herd to supersede the old one, after a thorough cleansing of the main barn, the new herd will be moved in and given possession, and the old herd will be no more.

Demand for Better Dairy and Market Measures.

Just at present public opinion is moving very fast toward a sweeping demand for milk from tested herds and for the pasteurization of the public milk supply, while the elimination of tuberculous cattle is going on. Milk producers are realizing that clean milk brings more income than milk which can be called questionable, and in larger numbers each year are initiating the clean-up measures.

No one questions the need of a great reform in the production and handling of the public milk supply. The writer does not question the practicability of accomplishing this great reform if all concerned will proceed honestly, intelligently, fearlessly and persistently in their respective spheres of activity, keeping in mind that the three objectives to be sought are —

1. The pasteurization of all cows' milk used as food, except from cows known to be free from tuberculosis. This measure is imperative and should be instituted at once.

2. The elimination of tuberculous cattle, a difficult undertaking but possible of accomplishment.

3. The conservation of young females from the best producers among dairy cows to replace reactors.

The incentive to perseverance will be stronger if all concerned will keep ever in mind that a large proportion of all dairy cattle is tuberculous; that danger lurks in the milk of tuberculous cows, if not pasteurized, whether taken as milk, cream, butter, cream cheese, ice cream, or in any form uncooked; that every day hundreds of human beings are dying from tuberculosis contracted in early childhood from the milk of diseased cows; and, saddest of all to contemplate, that this loss of human life which has been going on for years is unnecessary.

THE COMMONHEALTH.

BIMONTHLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
Room 546, State House, Boston, Mass.

Program of Maternal and Infant Hygiene. — The following letter was recently sent to all the physicians in the State: —

DEAR DOCTOR: — As you probably know, the Legislature authorized in June an additional appropriation for the promotion of maternal and infant hygiene, this appropriation to be expended through the Division of Hygiene of the State Department of Public Health. Since an appropriation on the part of the State in effect takes the place of any action under the Sheppard-Towner act, the Department of Public Health feels that this is a satisfactory solution of a vexed question.

The Department now appeals with entire confidence to the medical profession for assistance in its broader program under this additional appropriation. It will be recalled that during the discussion of the various State and Federal maternity bills, those of the medical profession who expressed an opinion seemed to be heartily in favor of State rather than Federal action, and in favor of an extension of the present State program rather than the inauguration of new types of activity which seemed to many to look towards changes in old relationships of physician and patient. The Department gladly accepts this point of view, and is planning its program for extension in three general directions: —

1. In the direction of an increased effort to get to the general public sound information on the subject of maternal and infant hygiene. Such information would include advice to the prospective mother to go as early as possible to a careful physician and to follow his advice implicitly.

2. In the direction of a patient and continued investigation into the causes of maternal and infant mortality and actual statistical facts. So far as possible each death will be studied by our physicians with a view to correlating the information thus gained with that which we already possess.

3. In the direction of surveys of cities and towns with respect to their child hygiene activities. These surveys will serve as a guide to assist each community in bringing medical and nursing facilities within the reach of any prospective mother and young infant. The Department will be ready at all times to advise with local communities as to their plans.

In this simple but far-reaching program, we ask your assistance and suggestions.

The Field Force in the Tuberculosis Program. — In the final analysis the success of any public health program lies in our ability to project its worth-whileness into the lives of our people. This is particularly true in the program for the prevention and control of tuberculosis, and through the field force of this Department our contact is made with the citizens of the Commonwealth.

Many of the duties of the field force are of statutory origin, mandatory in character, and, while valuable and necessary to the program, do little or nothing towards popularizing the tuberculosis program.

Experience has shown that the mere existence of dispensaries, nurses or hospitals contributes little but expense to the community; but the possession of any or all of these agencies intelligently utilized, plus enthusiasm built upon knowledge of the possibilities of a well-rounded tuberculosis program, adds service and results in a demonstrable saving of life.

Here, then, is the worth-whileness of the Department tuberculosis program, and here lies the function of the field workers. Preaching the value of prevention; the necessity of early diagnosis; stimulating the establishment of consultation and diagnostic clinics for contacts or the unusual, obscure case only to be diagnosed by repeated examinations by expert clinicians; urging the systematic follow-up by a tuberculosis nurse of the diagnosed case that the advantage gained through treatment may not be lost through lack of counsel and advice; advising the removal and the hospitalization of the open case with positive sputum from homes prolific in contact possibilities, are all within the scope of their daily duty.

Skeptical as one may have been in times past as to the wisdom of expending funds for the purpose of educating the public in matters pertaining to the prevention of this condition, the time is at hand where only the accumulated effect of these educational programs can account for the marked decrease in the mortality rates of the tuberculous.

Moreover, because of these results, our field force goes forth armed with the true conviction that our program is sound and that its results are the best evidence of its worth-whileness. — B. W. C.

DIET IN TUBERCULOSIS.

By Mary Swartz Rose, Associate Professor, Department of Nutrition, Teachers' College, Columbia University, New York City.

Rôle of Nutrition in Tuberculosis.

TUBERCULOSIS has long been accounted one of those diseases in which nutrition plays a conspicuous part. To improve the capacity of the body to utilize food, by careful attention to all those conditions which favor nutrition, — fresh air, rest, peace of mind and a good diet, — is one of the prime aims in treatment.

Just what is the best diet has been the subject of much experimentation and discussion, and widely divergent dietary programs have been advocated, particularly with regard to the total quantity of food and the relative importance of special articles of diet, such as eggs, cream, butter and milk.

Recent Understanding of Vitamines.

Recent advances in the science of nutrition have brought new facts to light and prepared the way for a better formulation of principles upon which the diet in tuberculosis should be constructed. Among these, the discovery of the dietary essentials known as vitamines, and the recognition of their importance in the maintenance of resistance to infection as well as in protection against so-called deficiency diseases, has seemed of great significance. It has been suggested by McCollum that those diets which have been successful in the past are rich in vitamines and especially in the fat-soluble A vitamine, and that the susceptibility of many persons is due to a deficiency of this vitamine in the diet. The beneficial effects of cod liver oil may be attributed, at least in large measure, to the fact that it is richer in the A vitamine than any other known substance, containing several hundred times as much as butter. The emphasis placed upon milk, cream, eggs and butter has not been misplaced, though the quantities prescribed have sometimes been excessive. To this list should be added also green vegetables, which have been more or less shunned by those intent chiefly upon a diet high in its calorie value. When digestion is too poor to use them as salads or freshly cooked, it is still possible to incorporate vegetables as purées, or to use their juices, gaining not only the A vitamine, but also the

B vitamine, with its stimulating effect upon appetite, and the C vitamine without which man maintains good health so short a time. For the same reason, a certain amount of carefully selected fruit is desirable. So far, natural foods have proven more effective than any commercial concentrations of vitamines.

Protein as a Dietary Constituent.

For many years the chief emphasis in nutrition was upon protein as the most important dietary constituent. King, of the Loomis Sanatorium, summing up the situation in 1909, wrote: "To combat the inanition produced by the acute or advanced phases of tuberculosis, hyperalimentation seemed a reasonable and proper measure, while an actual and relative increase in the protein constituent of the consumptive's dietary seemed particularly desirable." In 1905 and 1906 King had used a standard diet containing 166 grams of protein and approximately 4,000 calories. "Weight gains were satisfactory, but digestive disturbances were not uncommon." Thinking the diet might be excessive, he reduced it to 131 grams of protein and about 3,200 calories per day, with the result that weight gains were still satisfactory and the digestive disturbances disappeared. Somewhat later he tried a diet containing 100 grams of protein and yielding from 2,600 to 2,900 calories per day on four young men, with good effect, even when they were doing six hours of work per day. About the same time Bardswell and Chapman in England showed that a satisfactory diet could be arranged, conforming to what they then thought a very moderate standard (150 grams of protein and 3,200 calories), without the use of expensive eggs, cream and other delicacies. It is to be noted that milk was liberally used in these diets, both in cooking and as a beverage.

Liberal Protein Allowance: 1 Gram per Kilo of Body Weight.

Our knowledge of the nitrogen requirement of man has increased since that time. We now know that a normal man may be adequately nourished with as little as 45 grams of protein per day, so that 1 gram per kilo of body weight may be regarded as fairly liberal. An extensive study of the protein requirement in tuberculosis has been recently contributed by McCann, showing that from 60 to 90 grams per day is quite sufficient for patients having enough calories to meet their energy requirements. He regards more than

90 grams as likely to be disadvantageous in pulmonary tuberculosis, since the ventilation of the lungs is increased with increasing protein, owing to the greater oxidation. Even when the protein destruction is somewhat increased by fever, this loss may be arrested, as in typhoid fever, by adding to the carbohydrate and fat calories and not increasing the protein.

The policy of liberal feeding has often forced the total calories of the diet very high, ranging from 3,500 to 5,500 calories. McCann and Barr, bringing the technique of the modern nutrition laboratory to bear upon this problem, have shown that the energy expenditure may be normal or only slightly above that of normal men of the same size, and they suggest that, in view of this moderate requirement, forced feeding is unnecessary and probably harmful in the active stages of pulmonary tuberculosis. Clinical experience has lately pointed in the same direction, Pottenger stating that the desirable amount is the least which is consistent with regaining and maintaining the highest known weight in health. From 2,500 to 3,500 calories per day would seem sufficient for most cases.

With a view to limiting the total ventilation of the lungs, not only is a moderate calorie intake recommended, but also a diet in which a considerable share of the calories comes from fat, since this has less effect on ventilation than either protein or carbohydrate. This evidence sustains the common practice of using fat liberally, only now with more regard to not making the total number of calories too great.

No One Dietary Essential should be Emphasized at Expense of Others.

Quantitatively, then, the best diet is one with from 2,500 to 3,500 calories, depending upon the activity or the individual needs of the patient, — from 60 to 90 grams of protein, and as many as half the total calories in the form of fat, — with a plentiful supply of all the known vitamines, and also of the various mineral constituents which must be represented in a well-balanced diet. In other words, the emphasis has shifted from a high protein, high calorie diet to one in which no one dietary essential is emphasized at the expense of others, but all are present in amounts which are suitable for the normal person, save for stricter limitation of protein and freer use of fat.

In addition to this consideration of quantity, there must be equal stress laid upon the necessity of nicely adapting the diet to the individual. Account must be taken of the poor appetite and frequent digestive disturbances. The full amount of the prescribed diet needs to be taken with complete regularity, and trust in appetite alone to accomplish this is futile. Each day's food should be measured, at least roughly, and by encouragement, diversion, temptingly arrayed viands and other devices, its consumption secured. Careful cooking will do much to improve both appetite and digestion. Three regular meals a day are better than a larger number. The character of any digestive disturbance must be determined by the physician, and the selection of foods and their preparation modified to suit the situation. Constipation is common, and a gently laxative diet is superior to cathartics. Fruit and vegetable juices may be used when ordinary fruits and vegetables are not so well borne. The diet should not be too large in volume. Milk may be combined with many foods to their mutual advantage, and cream and oil dressings used over green vegetables.

A dietary to illustrate such a choice of food as will conform to present ideas is given below: —

Foods for a Day affording an Adequate Diet.

[Containing 90 grams of protein, 150 grams of fat and yielding 2,900 calories, or sufficient for an average man not engaged in active labor.]

MATERIAL.	Amount.	Calories.	Protein (Grams).	Fat (Grams).
Milk	1 quart	675	32	39
Butter	1.4 ounces	375	–	42
Cream (20 per cent)	½ pint	500	7	48
Oil or bacon	0.4 ounces	100	–	11
Bread	4.8 ounces	350	13	1
Potato	8.4 ounces	200	5	–
Egg	1 egg	70	6	5
Lean beef	3.4 ounces	150	20	8
Sugar	1.3 ounces	150	–	–
Farina	1 ounce	100	3	–
Peas, green	3 ounces	50	3	–
Lettuce hearts	2 ounces	5	–	–
Orange	1 medium	75	–	–
Apple	1 large	100	–	–
Total for day		2,900	89	154

Suggestions for Arranging these Foods in Meals.

Breakfast:
Orange juice.
Farina cooked with milk and served with cream.
Bacon, oven-broiled.
Toast, crisp, with butter.
Coffee with an equal amount of hot milk, served with cream and sugar.

Dinner:
Roast beef, inside cut.
Baked potatoes.
Buttered peas.
Lettuce hearts with cream dressing.
Bread and butter.
Junket.
Milk to drink, with added cream.

Supper:
Escalloped potatoes.
Omelet.
Crisp roll and butter.
Baked apple.
Cocoa made with milk.

TEACHING HEALTH TO A HUNDRED MILLION.

By Philip P. Jacobs, Ph.D., Publicity Director of the National Tuberculosis Association, New York City.

When the National Tuberculosis Association was formed in 1904 it was the only agency with a nation-wide scope and plan for teaching health to the general public. Since that time the tuberculosis movement has grown to one of immense proportions.

Development of Tuberculosis Institutions.

The National Association started out with a mere handful of supporters, most of them on the Atlantic seaboard. There were about 100 so-called tuberculosis hospitals scattered in different parts of the United States. Of these, except for one or two outstanding institutions like the Rutland State Sanatorium in Massachusetts, the majority were either private commercial sanatoria or places for dying people to die. The idea of the county or local tuberculosis institution, or of the open-air school, had hardly been born. To-day there is a well-organized tuberculosis association in every State in the Union, and there are besides nearly 1,200 local tuberculosis associations in all the large centers of population. These various organizations have brought into existence thousands of different agencies used in the fight against tuberculosis and for the improvement of the health of different American communities. Among these agencies may be included some 700 tuberculosis hospitals and sanatoria, with an aggregate bed capacity of nearly 60,000, nearly 600 tuberculosis clinics and dispensaries, several thousand open-air schools, thousands of public health nurses doing tuberculosis work, besides scores of preventoria, day camps and other institutions.

To bring the message of health and tuberculosis prevention to the general population, the National Tuberculosis Association and its affiliated State and local associations have worked along two main lines: first, that of educating the public with regard to the nature, cure and prevention of tuberculosis and the community machinery needed; and second, the organizing of community resources to secure those various institutions and agencies mentioned above.

Prevention through Education.

The job of educating the people has been and is being carried on in a great many different ways; for instance, exhibits, touring up and down the country, have reached millions with the desirable health message. The newspapers, magazines, trade journals, and various other kinds of printed periodicals have co-operated splendidly in spreading the message of tuberculosis prevention. Hundreds of millions of circulars, posters, dodgers, pamphlets and other kinds of printed matter have been scattered throughout the length and breadth of the country. The spoken word, with lantern slides and without, has carried health to millions. The motion picture in more recent years has been used to "get over" the message. But probably the most hopeful of all of these has been the development in the last five years of health teaching in the public schools.

Teaching Health to Children.

In 1916 the National Tuberculosis Association began to pioneer, with the possibility of teaching health to children by the project method, with the use of a chore record on which the children would keep daily score of what they did in the way of health performances. The following health chores were adopted: —

1. I washed my hands before each meal to-day.
2. I washed my face, ears and neck, and I cleaned my fingernails.
3. I kept fingers, pencils and everything likely to be unclean or injurious out of my mouth and nose.
4. I brushed my teeth thoroughly after breakfast and after the evening meal.
5. I took ten or more slow, deep breaths of fresh air. I protected others if I spit, coughed or sneezed.
6. I played outdoors or with windows open more than thirty minutes. I tried hard to sit and stand straight.
7. I was in bed ten hours or more last night, and kept my windows open.
8. I drank four glasses of water, drinking some before each meal, and drank no tea, coffee nor any injurious drinks.
9. I tried to eat slowly, and only wholesome food, including milk, vegetables, fruit. I went to toilet at regular time.
10. I tried hard to keep neat; to be cheerful, straightforward and clean-minded; and to be helpful to others.
11. I took a full bath on each day of the week that is checked.

This decalogue, with one thrown in for good measure, is revolutionizing the health of millions of children. Boys and girls, who used to hate soap and water are beginning to like them, because health is a game. The school children are becoming missionaries of disease prevention. The next generation will witness a more remarkable revolution in health work and a greater reduction in deaths from tuberculosis than has been shown in the last twenty years.

In other words, the national tuberculosis movement is simply recognizing the old adage, "You can't teach an old dog new tricks," and with that recognition it has begun to teach the younger generation "new tricks."

NECESSITY FOR ORGANIZATION.

But along with education has had to go a steady campaign of organization. It has not been enough merely to tell the people about tuberculosis. There had to be organized committees, associations and other groups on a community basis in order to get the machinery necessary to prevent tuberculosis. This machinery is, in brief, enough provision in a sanatorium or hospital to provide for at least one bed for every annual death; an open-air school for at least every 5,000 to 10,000 population; a dispensary for at least every 10,000 people; a nurse for every 100 patients as a minimum; enough medical care to go around to give everybody a diagnosis, whether he can afford it or not; enough money to see to it that people who need to take the cure for tuberculosis could get treatment, either at public or private expense; special provision for the care of children who have been exposed to tuberculosis, either in preventoria, day camps, or some other type of institution; and in general, an organization both official and non-official to see to it that the public as a whole is kept everlastingly on the job in preventing tuberculosis.

This all means organization. It means getting every citizen to value his own health and to realize how dependent he is in health matters on his neighbor and community.

The Program.

When you are asked, for example, by the Tuberculosis Association to vote "yes" for a tuberculosis hospital or some other measure, or when you are approached by the same organization with a request to buy Christmas seals, you may not realize that you are one of many others in the community who are being asked to do the same thing, and that by the concerted effort of all of you together the desired end will be secured. You may not realize, furthermore, that the Tuberculosis Association is looking forward to that goal when every case of tuberculosis or suspected tuberculosis in the community will be placed under adequate supervision, and when every boy or girl who has been infected by the germ of this disease will have a fighting chance for health. It may seem to you that now and again the emphasis is placed too strongly upon the nurse, or the dispensary, or the nutrition class, or the Modern Health Crusade, or the sanatorium; but experience has shown that the tuberculosis program goes forward usually by stressing one thing at a time, and by asking the community to support this one thing until it has been developed, and then passing on to something else that is needed.

Prevalence of Tubercular Infection.

When the National Tuberculosis Association was formed, the emphasis of the campaign was laid pretty largely upon the necessity for preventing infection from tuberculosis. More recently we have learned that almost everybody is infected with the germs of tuberculosis by the time he reaches adult life. That does not mean that everybody has tuberculosis. It means just this — that usually the germs of the disease get into the body in early childhood and lie there dormant and quite harmless for years and possibly for a lifetime. When, however, because of stress or strain brought on by overwork, undernourishment, self-indulgence, some contributing disease, such as influenza, or some other cause, that thing peculiar to the individual that we call resistance is lowered, then those apparently harmless germs begin to become active and the disease that we know as tuberculosis results. A person may become infected at the age of six and not develop tuberculosis until he is forty.

Responsibility as Individual and Citizen.

The fight against tuberculosis, therefore, becomes a fight for good health, a fight for better living and working conditions, a fight to give to every boy and girl the utmost benefits of his American heritage. It is a fight in which every individual must play two parts. First of all, he must be true to himself and strive with the utmost fidelity to keep his own body healthy and strong so that the latent germs of tuberculosis that no doubt lurk within his body will not get a chance to attack him. In the second place, he must fight as a citizen. He must not only consider himself; he must consider his community. He has a responsibility, first, for his own health, and secondly, for the health of those that live about him. In other words, he will not spit nor do anything else that will spread disease.

A Promising Future.

What the future holds in store for the tuberculosis movement, it is difficult to say at this time. There is enough experience at the present time, however, to say with a great deal of emphasis that the time is coming and is not far distant when any American community will be ashamed before its sister communities to have a death rate from tuberculosis higher than 20 per 100,000. To-day the average death rate in the United States is about 100 to 120 per 100,000. Five years ago, in the little town of Framingham, Mass., the National Tuberculosis Association began to demonstrate the possibilities of controlling tuberculosis on a community basis. In that length of time the death rate has been cut from 121 per 100,000 to 40 per 100,000, — a reduction of 67 per cent. What Framingham has done any community can do.

THE FIGHT FOR LIFE.

Less than a generation ago hundreds of American cities had death rates of 100 to 125 from typhoid fever. To-day it is a distinct disgrace for any American city to have a death rate from typhoid fever of over 5 per 100,000. So it will be with tuberculosis if we all do our part. Statisticians tell us that if tuberculosis could be eliminated entirely as a cause of death, which may happen some time, there would be added two and a half years to the life of every man, woman and child in the United States. If we capitalize the earning power of the average individual at the very low rate of $100 per year, on the basis of 100,000,000 population, this would mean an addition to the wealth of the United States of fully $25,000,000,000, or enough to pay the entire war debt.

Surely a fight for life such as this is worth while, and demands the support of every one.

TUBERCULOSIS NURSING.

BY BERNICE W. BILLINGS, R.N., EXECUTIVE SECRETARY, BOSTON TUBERCULOSIS ASSOCIATION.

TUBERCULOSIS nurses should be provided with a background of adequate training. Unfortunately few of the training schools have affiliation with tuberculosis institutions, and although a movement is underway to bring this to pass, it will be years before every nurse receives experience in tuberculosis institutional nursing. It would therefore be of distinct advantage for each nurse who is to do public health work, particularly tuberculosis nursing, to enter one of the tuberculosis institutions for a period of time, and study the work at close range. Furthermore, she should receive a course in public health nursing, which includes tuberculosis follow-up and clinic work, or the equivalent in experience; likewise she should know the resources of the State as regards tuberculosis. Added to this training she needs a good disposition, tact and optimism. These good assets are particularly needed by the tuberculosis nurse, for the reason that these patients are ill with a chronic disease, many of them have little or no money, and those more intelligent have read enough about the disease to appreciate the long illness which they face. Consequently they are frequently depressed, and the nurse is the one who should take time to explain the need of routine treatment and instill the spirit of hope, courage and patience into the mind of every patient.

OCCASIONAL STOCK-TAKING HELPS IN OUTLINING PLANS.

It is worth while for each nurse occasionally to take stock of the tuberculosis work carried on in the community. She can be helped in this by consultation with the State Department of Health, the local board of health, the local physicians and representative citizens. By means of this stock-taking the work which exists in the community may be roughly determined and definite plans outlined for improvement. These plans should be submitted to her committee, and after approval they should be kept by the nurse and referred to from time to time to note the landmarks passed and definite improvements made.

FOUR PHASES OF COMMUNITY WORK.

In considering the work in any community it will be found to divide itself roughly into four sections: (1) finding patients who are ill with tuberculosis; (2) follow-up work; (3) educational work; (4) general publicity. Finding patients who have tuberculosis is the most exhilarating part of the work, as the results are seen immediately. Frequently the details of this work are left entirely to the nurse, and it is for her to see that a complete and well-rounded plan is made, whereby both old and new patients may be located. The routine measures are as follows: (*a*) consulting the records of the city or town clerks for deaths from all forms of tuberculosis for a period of not less than three years; (*b*) consulting records of the State Department of Health and the local board of health for the names of all patients reported with tuberculosis dating from the time the disease became reportable; (*c*) records from the local dispensary often yield not only the name of an occasional unreported case of tuberculosis, but in addition will show the names of patients diagnosed as "suspicious" without a confirmation of diagnosis; (*d*) the local laboratory will occasionally give the names of patients who had a positive sputum but have never been reported with tuberculosis; (*e*) State and local societies should be consulted; (*f*) the records of the various charitable agencies frequently give recent addresses of old patients who have been listed as "unknown."

CONTACT WITH LOCAL PHYSICIANS VALUABLE.

Last and most important is the contact with local physicians which should be made when the nurse starts work. A letter should be sent immediately to each doctor, by the organization which employs the nurse, introducing her, stating the type of work which is being planned and asking his help. The nurse should follow this by a routine visit to each physician. Even though this seems to be taking considerable time it will go far to prevent many of the misunderstandings which frequently and unfortunately arise.

It is worth while to find out from each physician what he wishes done in regard to the care of his tuberculous patients, and also the examination of contact cases in homes of the poor. Frequently he has known a family for years and would prefer to examine the members of the household even though they are free patients; in other instances the physician would much prefer to have them go to the clinic for examination. These are all details which must be painstakingly worked out.

By using all these facilities, the nurse should be able to secure data regarding practically all known cases of tuberculosis.

SEARCH FOR "UNKNOWN" PATIENTS.

In order to find patients who are ill with the disease but of whom no one knows, careful home visiting must be made and all contacts must be urged to go to the family physician or the clinic for examination.

The search for patients who have moved from street to street, and those who are classified as unknown, becomes a great adventure. It carries one into the highways and byways of a city or town, and the house to house canvass brings the nurse in contact with many a potential patient and enables her to enlist a large corps of workers for the cause of tuberculosis.

THE "PERSONAL TOUCH" FOR ENROLLMENT OF NEW PATIENTS.

The chief of police helps with wise counsel in regard to a wayward patient; the postman is interested in the special clinic; the ward politician, the storekeepers, barbers, (in olden times the saloon keepers too), all fall in line in a quest for the man or woman "who is sick with a cough and has no doctor." This is the time when the nurse can tell every one about the local dispensary, the sanatorium and hospital, all of which are free. Never assume that all people know that these agencies exist. Chance conversation in the little grocery stores, which our foreign-born citizens frequent, will prove how little is really known about facilities which the State affords for the care of tuberculous patients. Over and over again the nurse hears, from one and all, the same "They can't get well," or "They all die, anyhow," and she stops to explain about the people living near-by who were ill ten or fifteen years ago and under treatment for months, but who are now "well and working." Many of these new-found friends will tell the nurse bits of personal history which reveal the ravages of tuberculosis, and ask advice as to the care of children who have been exposed to it. Here and there an old man or woman says, "God bless you," and so the day goes on. By nightfall the missing patients may be missing still, but the nurse is sure the barber's wife will come to the dispensary next week, and the frail widow who has a cough, sputum and night sweats will come also and bring her three children.

Isolation Hospital, Lowell, Mass. — Men's pavilion and corner of cook room.

CLINICS FOLLOWED BY CONFERENCE WITH FAMILY PHYSICIAN.

Clinics may be held successfully in any central place, providing the essentials of a waiting room, dressing rooms and an examining room are at hand. One of the most successful tuberculosis dispensaries started in an old store, which was cleaned, whitewashed and used until outgrown.

Following the clinics, a report of new and suspected cases of tuberculosis should be sent the local board of health. The family physician should receive a duplicate of the history card which contains findings and suggestions for treatment. Following a conference with him, home visiting should start immediately, as after a diagnosis of tuberculosis, patients are worried and anxious to be advised regarding treatment.

It is useful to secure an ally in the person of some member of the family who will take a special interest in the treatment of the patient, as well as the precautions which must be observed.

Arrangements for Care and Comfort of the Patient.

If the patient is to enter a sanatorium or hospital immediate arrangements for this should be made. The question of sleeping quarters, food, rest and precautions which will safeguard the other members of the family must be taken up in detail, not only once but many times. Oftener than not in the poorer sections of the city a patient will be found to be sleeping with at least one other person. Plans must be made to provide the patient with at least a separate bed, and, if possible, a separate room. Frequently a small porch, or tent on the roof, or in the yard, can be fitted up with little expense, and the patient made comfortable. Additional food may be needed by the patient, or the family may need a plan for long-continued aid. The problem of supplies should be taken up with the proper relief agency, thereby relieving the nurse from administering aid. Details which the physician wishes emphasized regarding food, regularity in eating, rest and exercise must be carefully explained. Advice must be given regarding the care of sputum, precautions to be observed when coughing, and the patient must be provided with paper napkins or sputum boxes. The boiling of dishes, bed linen, towels, napkins, the care of the toothbrush, how to obtain dental work if this is needed, as well as bathing, and the care of the bowels, are all important things to emphasize.

Work with Other Members of Patient's Family.

After the patient enters an institution the nurse must continue to visit the home in order to keep the patient informed as to the health and well-being of other members of the family, thereby helping to keep him contented. An effort should be made to lift the standard of living in the family so that he may return to better surroundings after his discharge.

There should be a routine physical examination for the other members of the family, and frequently the physician will wish to make re-examinations from time to time.

If a patient in an advanced stage of the disease refuses to enter an institution, the nurse must make him as comfortable as possible at home, and the other members of the family, particularly the children, must be protected at all costs. By far the safest way is to remove the children from the home, boarding them outside as long as necessary.

Record Keeping.

Record keeping is an important factor in tuberculosis nursing. It should give a clear picture of the patient and his family. These records may be of inestimable value to the health officer, physician and others. They also prove the good work which the nurse has accomplished. It is better to have a simple form of record card and keep it carefully than an elaborate system with little on the cards. From these records may be secured data on the sections in the city or town where there is the greatest number of cases of tuberculosis, the relation of the number of living cases to the number of deaths, the improvement or lack of improvement in each patient and family, and whether the patient has adequate medical supervision. Frequently the lack of improvement in a patient or family may be traced directly to the fact that the home visits were too infrequent, or the quality of supervision was poor; however, the nurse must never become simply a seeker after statistics at the expense of the welfare of a sick patient or his family.

Health Education through Home, Factory and School.

The most forceful method of educating families in tuberculosis work is by means of the home instruction and demonstration given by physicians and nurses. Other opportunities lie in the factories when an insert on tuberculosis may be placed in each pay envelope; this should be followed by a noonday talk to the employees. The Modern Health Crusade and health plays for children, moving pictures on tuberculosis, and general health topics, lectures on tuberculosis for nurses and lay audiences, all help to spread the story of prevention of tuberculosis and care after infection. Publicity in the daily papers is a means of reaching thousands of men and women of all classes in society. If care is taken in preparing an article for publication it will be accepted, providing it is really news and not too lengthy. The city editors and reporters are always willing to use good material. If these means are used in each community there will be an increase in the number of known cases of tuberculosis, and physicians and nurses, as well as public and private agencies, will work together for the common health.

VOCATIONAL TRAINING AND CERTAIN ALLIED MEANS OF DEALING WITH THE PERMANENTLY HANDICAPPED CASES OF TUBERCULOSIS.

By Bayard T. Crane, M.D., Rutland, Mass.

THE total number of individuals acquiring or dying from tuberculosis has been greatly reduced.

However, the astonishing and lamentable fact remains that the campaign against the disease has not, generally speaking, improved the ability to detect cases in the earliest stages. The relative proportion of incurable cases remains about as great as it was many years ago. Speaking in the most general terms only $\frac{1}{4}$ of the cases starting treatment are incipient, or 25 per cent; $\frac{2}{4}$ of the cases starting treatment are moderately advanced, or 50 per cent; $\frac{1}{4}$ of the cases starting treatment are far advanced, or 25 per cent, making a total of 100 per cent.

Again, speaking in the most general terms, 80 per cent of all incipient cases are curable; 25 per cent of all moderately advanced cases are curable; 10 per cent of all far advanced cases are curable.

To obtain a combined total percentage of all curable cases we will then multiply the percentage of cases belonging in each medical group by the percentage of curables in that group and add together the resulting figures; thus the percentage of curable cases from the incipient class is determined by multiplying 25 per cent by 80 per cent, which equals 20 per cent. The percentage of curable cases from the moderately advanced class is determined by multiplying 50 per cent by 25 per cent, which equals $12\frac{1}{2}$ per cent. The percentage of curable cases in the far advanced class is determined by multiplying 25 per cent by 10 per cent, which equals 2½ per cent. The total percentage of curables from all classes combined is 35 per cent.

Thus, roughly speaking, one-third of all cases of tuberculosis coming for treatment at the present time regain their health fully, but another third of them are progressive and die within about three years. The remaining third lie between the other two, being neither the most hopeful nor the hopeless cases. In this group may be found the chronic fibroid cases ("the old-fashioned consumptives") who may be found in every community living a sheltered life but clinging to it with successful tenacity. In this group are also to be found cases with precarious "resistance," whose disease "flares up" at odd intervals. The cases in the group are not defined with any exactness or lucidity from a pathological point of view, though of course they are made up essentially from those that were recognized too late, and already were mainly moderately advanced or far advanced when starting treatment.

OCCUPATIONAL REQUIREMENTS OF THE MODERATELY TUBERCULOUS.

This third group is best defined from an occupational viewpoint. They are not equal to the standard industrial and occupational conditions, and yet they possess some creative faculties. Their ability to carry on laborious manual work is reduced, while, on the other hand, they frequently prosper under light occupations, especially if carried on in the open air. They need special occupational conditions, and they need very favorable living conditions. They are the frail, substandard group, capable of some creative effort, but they falter, fail and fall in the hurly-burly, cold-blooded, high-pressure modern life. Through specialized occupational conditions and indulgent living conditions their creative output and longevity can be greatly increased. Through these favoring agencies they and the community as well would benefit economically.

But, *mirabile dictu,* the campaign against tuberculosis has seemed to overlook the special requirements of this group. Let us repeat that numerically they are about as great as the curable cases.

If specialized occupational conditions are essential for this group, *how may these all-important, specialized, occupational conditions be procured?*

The full answer to this question may not as yet have been determined, but surely enough has been accomplished in a few isolated experimental enterprises to point most encouragingly toward an adequate solution to many of the perplexities which this "partially submerged third" face.

At present there are two proposed systems through which specialized occupational conditions for the tuberculous may be arrived at: (1) vocational training and (2) industrial (and residential) colony.

VOCATIONAL TRAINING.

The utilization of vocational training for the tuberculous is to be credited in this country to the Federal Board for Vocational Education. This governmental system has been in operation sufficiently long now (having been initiated to deal with the disabled ex-service men) to demonstrate its strength and weakness. I have had a very intimate acquaintance with this system for over three years and feel competent to appraise it. I would say that it is based on an advanced conception of social betterment, and that theoretically it should be able to rectify many of the evils resulting from disability. It has increased the conception of community responsibility for some of the woes of the tuberculous. It has been an enormous demonstration backed up by enormous sums of money. Certain ex-service men through this system have been helped on to an elevated occupational and economic plane which would have been the envy of unfortunate tuberculous civilians heretofore. I am told, however, that the results in Canada are similar to those under my supervision in this country; that the percentage of actually rehabilitated tuberculous ex-service men is considerably less than 25 per cent. There are certain mitigating circumstances to explain this low percentage, and the demonstration of possibilities through this system has not closed, but it is my conviction that the Federal system of vocational training for the tuberculous is not such a complete exposition of the possibilities of vocational training that the merits of such training for the tuberculous should be judged entirely by this experience with ex-service men. I feel certain that much better results could have been obtained by emphasizing the value of fewer, but selected, occupations for many of the tuberculous rather than by offering such generalized vocational opportunities to the men. In my opinion a vocational system, suitable for the once tuberculous person, should be emphatically under medical definition and direction. A vocational system, no matter how excellent according to educational standards, is apt to be entirely inappropriate to a once tuberculous person unless it is approved by a competent lung authority as preparing that patient for an occupation which the particular patient may stand up under.

Supervision of Competent Physicians Essential.

Vocational training should be carried on only under the careful supervision of competent tuberculosis physicians. This statement is borne out by the fact that in some communities it is reported that as high as 50 per cent of the cases have relapsed while undergoing training. But this occurred chiefly in the large cities where it is not possible to provide the most exemplary health conditions, and where it was impossible, or where it was not attempted, to arrange training for the tuberculous independent from other trainees. The large proportion of relapses in these instances has led to the conclusion, by some of those with the most intimate experience with the problem, that vocational training of tuberculous cases should not be undertaken in the customary educational institutions, but that it should be carried on in special schools so that the special health conditions and the expert supervision of a specialist shall have full sway.

The New England Vocational School which has been conducted by the Central New England Sanatorium, Inc., at Rutland, Mass., has developed such a special school with the encouragement of the National Tuberculosis Association co-operating with the Federal Board for Vocational Education. It is gratifying to note that at this school relapses have not occurred among the trainees in the cases which accepted full medical supervision. Yet many of the cases were active, open cases of tuberculosis taking treatment in the sanatoria of the town. Active cases were not permitted to attend school, as a rule, more than three hours a day, while quiescent cases, as a rule, attended from 9 A.M. to 12 M. and from 2 to 5 P.M.

The courses at this school have consisted of —

Academic.
Agricultural.
Chauffeuring.
Commercial Studies.
Mechanical Drawing.
Watch Repairing.
Woodworking.

It is not possible to discuss fully the merits and demerits of these courses for the tuberculous. In my opinion they stand in the following order of relative value and suitability for the tuberculous: —

1. *Agricultural.* — Emphasizing poultry, apple orcharding, small fruits and selected forestry.
2. *Watch Repairing.* — The absence of laboriousness, the high salaries paid and the comparatively good working conditions associated with this vocation make this a surprisingly suitable occupation for once tuberculous persons.
3. *Commercial Studies.* — The comparative ease of perfecting one's self in such a course as stenography, and the widespread demand for persons of both sexes trained in commercial courses make this a popular course and valuable.
4. *Woodworking.* — While pattern making and cabinet making are not, generally speaking, suitable for the once tuberculous, nevertheless, light carpentry and outside carpentry seem to me to be very suitable for male patients who give prospect of satisfactory arrest of the lung disease.
5. *Chauffeuring and Light Auto. Mechanics.* — Routine auto. mechanics such as is conducted in large repair shops would be unwise for the tuberculous in general.
6. *Mechanical drawing and mathematics* are employed in the New England Vocational School essentially as an allied course to round out other courses such as woodworking.

This list is by no means presented as a complete one.

Training not advised for "Curable" Group.

Statistics obtained by Dr. David R. Lyman in Connecticut have indicated that arrested cases of tuberculosis thrive perhaps better by returning to their former occupation rather than in a new occupation. These statistics were gathered before any generalized vocational training system was in operation, and Dr. Lyman's statistics might be considerably modified if vocational training had been open to the same patients during their sanatorium treatment. The advantage of returning to former occupations has arisen evidently because it avoided the necessity of adapting the person to a new environment on return to work. Be that as it may, it would seem to me that at the present time vocational training should not be attempted as a general policy for those tuberculous patients who give a good prospect of complete arrest of the disease, because they usually do quite well in their former occupation and without relapse. The only exception that should be made to this general statement should be for patients whose former occupations have been of a lower economic grade than the patients are capable of following. Vocational training should be open to these cases also.

Vocational Training of Value for Substandard Cases.

The point cannot be emphasized too strongly in my opinion that vocational training should be directed particularly to the cases who do not give satisfactory prospect of arrest of the disease, and to those cases whose former occupations were definitely hygienically hazardous. These are the cases which have been discussed earlier in this paper as the substandard, "partially submerged third." They are not wanted in the usual industrial conditions of the day because they are not equal to the standard labor requirements. Labor unions frown on them. They are often treated as disease menaces if introduced among other workers. They must find a new place in life, and usually their old occupations are not open to them. Let us repeat once more that numerically they are about as great as the curable cases, and deserve far more attention than they have received in the general tuberculosis campaign. Vocational training will be of great value to this particular group if wise vocational advisors and competent tuberculosis physicians will work together to set these cases up in a new employment niche.

It is obvious that vocational training is merely preparation for a vocation, and is not synonymous necessarily with successful bread-winning and bodily well-being. This paper claims that actual "specialized occupational conditions" and "indulgent living condition" are necessary to give the frail group of tuberculous patients their best chances of "successful bread-winning and bodily well-being." On this theory we must add something to vocational training before it becomes actual bread-winning.

The system in vogue with the Federal Board for Vocational Education and its successor, the United States Veterans Bureau, is to follow vocational education by placement training or project training.

Placement training can be roughly compared to apprenticeship. Project training allows more individual initiative and responsibility. Along with both goes medical treatment, but essentially this medical treatment is not mandatory. This allows great latitude of conduct on the part of trainees, which often ends disastrously and which accounts in large measure for the many relapses among the arrested cases of tuberculosis in ex-service men taking vocational training.

Strict Medical Authority Essential.

The Central New England Sanatorium, Inc., finally became convinced that vocational training when applied to all the "arrested" cases among ex-service men was a real health hazard, and that it could not conscientiously participate in vocational training to these men without having at the same time a medical authority over the men equal to that enjoyed by sanatorium physicians over sanatorium patients. It therefore provided living quarters, nursing and physician supervision, to "arrested" cases, and found this disciplinary control and regulation of living conditions to be of about equal importance to vocational training.

The Central New England Sanatorium, Inc., is convinced —

1. That vocational training should be granted to once tuberculous persons only on condition that they follow fully all medical orders.
2. That the training of once tuberculous persons should be mostly conducted in special schools under the direction of tuberculosis experts.
3. That improved living conditions should be rated as of about equal value to trainees as the training itself.
4. That further study should be made to determine the most favorable occupations for the tuberculous, and to emphasize those objectives in vocational training.
5. That in addition to placement training and project training a further development be made looking toward a perfection of medical control while trainees are undergoing the physical tryout.

INDUSTRIAL COLONY.

Doubtless through the above system of vocational training and through an improvement of it, many of the substandard tuberculous men and women of the community could be placed on a higher economic plane which would lead to greater happiness and longer life than has been possible to similar unfortunates heretofore. But it would seem that something beyond the above system must be available to some of the group before they are stabilized to the fullest extent. This paper is an attempt mainly to describe vocational training for tuberculous persons, and no attempt will be made here to describe fully other systems of establishing these tuberculous patients. There is increasing evidence that a system of specialized industry and regulated living in a special community is essential to meet the requirements of some of the substandard group. The

National Tuberculosis Association has had, in recent years, a special committee, which was called a colonization committee, working on this subject. The official name of this committee has now been changed to that of a committee on After Care and Economic Reestablishment.

It is my personal belief that such a colony is of about equal importance to the system of vocational training as described above, and, in fact, they should go hand in hand in order to cover the requirements of the substandard group. Briefly it can be stated that in Rutland, Mass., under the supervision of the Central New England Sanatorium, Inc., an experiment has been conducted for some years leading in the direction of an industrial colony, and that recently a farm of 223 acres has been acquired on which the beginning of such a colony has already been made.

THE COMMUNITY HEALTH AND TUBERCULOSIS DEMONSTRATION.

By A. K. Stone, M.D., Administrative Director.

In 1916 the Department of Public Health of Massachusetts recommended Framingham to the National Tuberculosis Association as the most desirable town of the type and the population designated by the association in which to conduct a health demonstration, by means of which it was hoped that the death rate from tuberculosis should be materially and permanently lowered. The reasons given for the selection of Framingham were: first, its geographic position near Boston, with ready access to the laboratories of the State, the various medical schools and hospital centers; second, because Framingham was the one town of the designated population whose board of health had a full-time agent to carry out the ordinances and duties of the board. In addition, the schools had had a nurse and the services of a physician on part time for several years. The industries of the town were varied, and the administration of the leading plant was progressive in regard to its dealings with the employees, both for their health and social welfare.

PURPOSE AND PROGRAM OF THE DEMONSTRATION.

It was the purpose of Dr. D. B. Armstrong, who directed the work, to make as complete a survey as possible of the conditions which affected the public health as they exist in Framingham; to find out the amount of tuberculosis in the town, and to present the result of these figures to the people in authority; to aid all the local agencies which had the public welfare at heart; to help them enlarge their programs; and if necessary to give them direct financial aid as well as advice. To carry this into effect a series of surveys of the industrial and economic conditions of the town were made by experts loaned by the United States government and other agencies. A sickness census was then instituted, and this was followed by two examination drives in which nearly 5,000 people were examined. The examinations disclosed 1 per cent of the population with active and another 1 per cent with arrested disease. A large number of unsuspected and unreported cases of tuberculosis were found during the first year of the demonstration. The school committee quickly added a physician on full time, who during his first year examined nearly 2,500 of the school children. A dental equipment was established, and two dentists on part time were inaugurated in the early days of the demonstration. A dental hygienist on full time was also employed.

The local hospital also received aid in getting its X-ray equipment into proper shape for active use, and the number of chest plates which have been made for the demonstration has materially aided in the general upkeep of the plant.

NURSES AND CLINICS.

The board of health took on a nurse to devote her time to the cases of active tuberculosis as reported to the board of health. The number of cases reported in an early stage of the disease has risen from about 45 to 75 per cent. The infant welfare work was established first by the demonstration, and then the work was taken over by one of the local private organizations, although the salary of the nurse in charge was still financed by the demonstration. The full responsibility for this work has now been assumed by the board of health, which now employs two infant welfare nurses and maintains four well-baby clinics, as well as three clinic physicians.

REORGANIZATION OF INDUSTRIAL PLANT.

The largest industrial plant was reorganized according to a plan suggested by the demonstration, so that a full-time physician, suitable equipment and two nurses were installed. The examination work here has grown, and since about a year ago, at the request of the employees, all new employees are examined before being taken into the plant. The most recent development has been the addition of a dental clinic for the use of the operatives. Milk is also furnished operatives in the forenoon and afternoon on recommendation of their own physicians.

As for the demonstration itself, its contribution has been the employment of a nurse to keep in touch with the children who came to the health camp during the summer months, and those cases of tuberculosis in the arrested list who were not under the jurisdiction of the board of health.

CONSULTATION SERVICE.

The enthusiasm created by the drives which led a number of people to have complete physical examinations from their own physicians resulted in finding a number of suspicious cases of tuberculosis, which necessarily had to be followed up in order to establish a diagnosis. Requests came to the demonstration from the town physicians for consultation service, and this has gradually developed, so that Dr. P. C. Bartlett, former superintendent of the Rutland State Sanatorium, has devoted his full time at the demonstration to the physicians of the town, to the board of health, and to the various industries, partly in helping them organize their health work, and partly in giving such consultation or medical service as they have needed. This consultation service has been utilized by practically all of the physicians of the town, and has been of the greatest assistance to them in helping them diagnose tuberculosis, and at the same time retain their cases. As a result of the education which the people have received and the assistance given to the physicians, a larger number of patients have gone, during the five years of the demonstration, to State institutions than from any other town in the State in proportion to population. In fact, the proportion has been more than one patient in a sanatorium to each tuberculosis death.

Summer Health Camp for Children.

The demonstration also maintained for five years a health camp for children during the vacation months of July and August, under the direction of a physician and nurse, with suitable attendants. These children, either from tuberculous families known to the health station, or else recommended by the public health nurses and the local physicians, were given nourishing food and proper rest and play.

This, briefly, is the machinery that has been devised, and it has practically all passed into the hands of the people who must carry it on for better or worse.

Analysis of Results.

The energies of the demonstration are devoted at present to the careful checking up of results that are being obtained from the working of the health machinery which has gradually been evolved. This work is of great importance to all interested in the tuberculosis problem, showing as it does the source of new cases which are continuously cropping out in the town, and the course of the disease in the long-standing arrested cases which during the five years of the demonstration have been under observation. There are now in this little community of 17,000 people about 200 cases of tuberculosis active and arrested under observation, while more than 200 others have either died or left town, who have been under observation at some time during the period of the demonstration.

The past five years have shown that intensive work is necessary to discover many unsuspected cases of tuberculosis, and that a number of cases will always go to far advanced stages before being found unless adequate machinery is adopted to find them early. If they can be found, some of them at least will be arrested.

The whole Framingham community in general has responded to the educational activities. The death rate for tuberculosis is below that of the towns and cities which were selected several years ago for comparison. Much still remains to be done, and the real outcome of the work can only be shown in reports of later years as it is gradually found out whether, as the present tuberculous persons pass from the scene, their places will no longer be filled by the children who have had the benefit of the greater opportunities for health.

SOME VIEWPOINTS OF THE PRACTITIONER ON PULMONARY TUBERCULOSIS.

By George Dallas Henderson, M.D.

IN considering the practitioner's viewpoint of pulmonary tuberculosis there are certain things that stand out and that are of much importance — that are worth noting, and that should be constantly repeated as of increasing importance. Some of them are as follows: the disease is a contagious one, the sputum being in 95 per cent of cases the means of spreading the disease; constant effort should be made to prevent expectorating, except where it will do no harm; the laws should be made powerful enough to protect, and the police active in seeing that the laws are carried out; early diagnosis is of the utmost importance, greater use of the State clinics for diagnosis is not only of advantage to the patient, but to the doctor, that he may see in these clinics teaching centers for diagnosis; tuberculosis is a curable disease; no one climate is essential for cure, and other facts along the same lines.

Importance of Destruction of Sputum.

In recent years, since it has been fairly well demonstrated that pulmonary tuberculosis is not often spread by contact among adults, — at least not readily and only under the most favorable conditions for its spread, — there seems to have been a letting down in the effort to protect others in every way by the most careful destruction of all sputum and by the isolation of those things coming in contact with the patient which may be a means of spreading the disease. It is a fact that in adults it is the lowering of the vitality of an individual, a lowering of his personal resistance against disease in general, and this one in particular, to such an extent that old foci, dormant for years (and which would stay dormant if personal health was looked after) are lighted up anew and allowed to become active. Still, it is as true as ever that it is the lack of proper care of the sputum which puts into the child these same germs which later in his life become active; and it is just as true as ever that if the child is protected against the early infection, and his health looked after later on through life, tuberculosis would lose most of its terror, and would mostly disappear — at least to such an extent as to become one of the rarer causes of death, instead of the cause of surely 1 out of every 10 deaths recorded. In the practitioner's experience not enough care is exerted for the destruction of the sputum, and more emphasis than ever should be placed upon this point among the sick and their families.

SERVICE OF TUBERCULOSIS NURSES.

Certain it is that those unable to protect themselves should be protected by others, and I mean by this that among children no effort should be lost in seeing that they are protected. The family should learn the danger to the child, who plays on the floor where the dust settles, and who will most certainly come into contact with the germs unless all sputum is controlled. All cases in homes should be followed up as closely as possible, to be sure that care is being taken, and if it is not, some means should be utilized for making the home safe for the child. Not only should the doctor be in close touch with the case, but other aids at hand should be used. Almost every city has a tuberculosis nurse, and many have societies that will furnish nurses (anti-tuberculosis societies). And when these are not at hand the doctor and the civil population should know that the State has a nurse in every district who is ready and willing to be called upon to teach and direct all as to the proper care and treatment of patients, so that the child as well as the patient may be protected. In the practitioner's experience many and most of the future deaths from pulmonary tuberculosis are due to the fact that the child is not protected as he should be, and is being left where he soon becomes the harborer of the germ which later will become active and cause his death. There should be some way made possible whereby the State could follow up active cases to see that they are properly cared for. This is being done with syphilis when the doctor does his duty.

CASE-FINDING.

One of the persisting difficulties is the finding of cases in the more advanced stages of the disease. How to overcome this difficulty is a problem not yet solved. Only recently have I seen two cases so far advanced that one was dead within two months of the time the diagnosis was made (so far as the patient's knowledge was concerned), and the other did not live much longer, and these were not of the rapidly advancing type, for both had been sick with the disease for a long time. Is it the doctor's fault or is it the patient's? I am sure it is both. The physician should keep it constantly in mind and the patient should be taught to do the same — be sure that every cough should be investigated until it is gone, and that all unexplained illnesses with or without fever be considered as possible tuberculosis, and efforts be made to exclude that possibility. The public should be urged to be examined biannually, and the lungs should never be slighted. When there is the least suspicion existing regarding them, consultation should be used. Especially is this true when there has been contact with known cases.

State Diagnostic Clinics.

Here, again, our wonderful Commonwealth comes to our aid. While it is true that every city has a tuberculosis clinic that all may use, the diagnostic clinics furnished by the Commonwealth of Massachusetts are very valuable. They should be "advertised," so that not only does the physician know and use them, but the civil population should know about them, too; and when the family physician fails to use these clinics, the family should be taught to call them to his attention. Scattered about in all sections of the State, and made easily available to all (especially for early cases or suspects) are located these clinics, where at stated intervals the experts from our State sanatoria come to see any case that may be presented to them for a consultation and examination. And these consultations are free of charge both to the physician and to the patient. These clinics, if properly made use of and patronized, would be not only of the greatest value to individual cases taken there, but would become a center for the teaching of diagnosis of diseases of the lungs, and in this way the physician himself would be made more able by the constant contact with experts in this line to tell the suspect when he sees him, and thus bring about much earlier diagnosis and save many lives. May the State keep up this good work, and may the existence of these clinics be made common knowledge.

Reasons for Late Diagnosis.

One of the reasons for the late diagnosis is the fear that a few physicians and many people have in letting the patient know he has the disease. This is the practitioner's experience many times. There seems to be no excuse for this attitude in the profession, and we should see that it is dispelled among the laity. For experience teaches all familiar with the facts that unless the patient is informed of his condition and its danger to others, he will neither do those things that are necessary to make him well, nor will he take steps to protect others against danger. When not told, many patients will insist in living in the old way, and some will even refuse to give up their employment which will mean constant advancement of the disease until it is too late to get well.

Essex County Sanatorium — Middleton.

Another reason for some late diagnoses may be due to the fact that many people do not know that pulmonary tuberculosis is a curable disease, and therefore do not present themselves for examination, fearing the result of same. When they are taught that most children living in cities have been attacked by the disease by the fifteenth year of life, and that only 10 per cent of them later die of it, and that many of these 10 per cent would get well if their disease was diagnosed early and they had the proper care, I am sure that they will make greater efforts to find out whether they have tuberculosis, so that they can take every opportunity to get well and to protect others.

THE "CLIMATE" FALLACY.

Another point is that many people think that if they cannot be moved from their particular climate to one more suitable they will not get well. It would be a blessing if the profession would tell about the life of Trudeau, how he went about finding a climate where he might get well, and came back to his own here in the east to find that right here, with the only things that are necessary to get well, — rest, sunshine, fresh air, good food, change of way of living, etc., — he did get well enough to live a very active life for many years, and to be a means of happiness to so many whose lives he saved from this dreaded disease. This kind of information made common knowledge would be a great blessing to many. Let us impress the public with the fact that most all of the benefit of a change of climate is due to the change in method of living, and that if like changes were made at home, patients would do as well at home as away. This knowledge would aid, I am sure, to earlier diagnosis, as would the removal of any fear. The results of the treatment in our State institutions of the early diagnosed cases of tuberculosis show that no change of climate is needed. If we learn to care for the disease here, and take heed of this knowledge, just as good results will follow as those obtained in so-called favorable climates. Personally, my feeling to-day is that these State institutions are the best places for people to learn how to take care of themselves, and to protect others against danger. And where circumstances are such that the patient is not well taught at home, my feeling is that he should take the opportunity offered by the State and stay long enough in one of its institutions to learn how best to get well, even should he insist upon returning home before this is advised by those in attendance.

NEED OF EDUCATION IN NATURE AND CARE OF TUBERCULOSIS.

Many other things may be of as much importance as these mentioned. But let us remember these, and more than ever spread the information: that the disease is still a contagious one; that every effort should be made to destroy the sputum and prevent the spread of the disease; especially we should protect the children; earlier diagnoses should be made; the use of our State clinics with experts in attendance should be made more general and for this very purpose, — early diagnosis; that it be thoroughly understood that tuberculosis is a *curable* disease — many of the fears regarding it are imaginary; that with knowledge of the disease and proper care, even if in our own locality, many could be saved for long and useful lives. Without this knowledge these many are now dying.

DIRECTORY OF OFFICIALS, INSTITUTIONS AND ORGANIZATIONS DEALING WITH TUBERCULOSIS.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Dr. Remick, Director of the Division of Tuberculosis.

DISTRICT HEALTH OFFICERS AND NURSING ASSISTANTS.

NAME.	Residence.	Location.
Dr. C. W. Milliken	222 Union Street	New Bedford, Mass.
Mrs. Sara Chace	222 Union Street	New Bedford, Mass.
Dr. George T. O'Donnell	546 State House	Boston, Mass.
Miss Helen C. Reilly	546 State House	Boston, Mass.
Dr. Lyman Asa Jones	Humphrey Street	Swampscott, Mass.
Miss M. G. Martin	–	Hudson, Mass.
Dr. Charles E. Simpson	100 Holyrood Avenue	Lowell, Mass.
Miss Mildred Ashley	360 Harvard Street	Brookline, Mass.
Dr. Oscar A. Dudley	614 Park Building	Worcester, Mass.
Mrs. Anna Hartnett	1 Euclid Avenue	Worcester, Mass.
Miss Katherine B. O'Connor	2 Pine Street	Fitchburg, Mass.
Dr. Harold E. Miner	105 Bridge Street	Springfield, Mass.
Miss Mary Ayer	105 Bridge Street	Springfield, Mass.
Dr. Leland French	Box 1036	Pittsfield, Mass.
Miss Katherine M. Turner	344 North Street	Pittsfield, Mass.

TUBERCULOSIS INSTITUTIONS.

STATE SANATORIA.

NAME OF INSTITUTION.	Location.	Number of Beds.	Rate per Week.	Superintendent.
Rutland State Sanatorium	Rutland	350	$4	E. B. Emerson, M.D.
Westfield State Sanatorium	Westfield	265	$4	H. D. Chadwick, M.D.
North Reading State Sanatorium.	North Wilmington.	195	$4	C. C. MacCorison, M.D.
Lakeville State Sanatorium	Middleborough	250	$4	Sumner Coolidge, M.D.

Application should be made through local board of health or family physician to the Department of Public Health, Division of Tuberculosis, State House, Boston, Mass.

County Hospitals.

Name of Institution.	Location.	Number of Beds.	Rate per Week.	Superintendent.
Bristol County Tuberculosis Hospital.	Attleboro . .	60	$9.10 residents, $25 non-residents.	A. S. MacKnight, M.D.
Essex Sanatorium . .	Middleton .	176	$9.10 residents, $25 non-residents.	Olin S. Pettingill, M.D.
Hampshire County Sanatorium.	Northampton .	50	$10.50 residents, $18 non-residents.	C. J. O'Brien, M.D.
Norfolk County Hospital .	Braintree . .	71	$9.10 residents, $25 non-residents.	A. J. Roach, M.D.
Plymouth County Hospital	Hanson . .	66	$9.10 residents, $25 non-residents.	B. H. Peirce, M.D.
Pocasset Sanatorium . .	Bourne . .	26	$9.10 residents, $25 non-residents.	H. S. Wagner, M.D.

Application should be made through the local board of health.

Under Department of Public Welfare.

State Infirmary . . .	Tewksbury .	340	No charge . .	J. H. Nichols, M.D.

Application should be made through the local board of health.

Municipal Hospitals.

Boston Sanatorium . .	Mattapan .	420	$10.50 residents, $12.50 non-residents.	A. J. White, M.D.
Channing Home (women only).	Boston . .	22	$5	Ellen C. McAdam.
Brookline Tuberculosis Hospital.	Brookline .	14	$10 residents, $20 non-residents.	Miss Martha M. Meek.
Cambridge Tuberculosis Hospital.	Cambridge .	150	$17.50 . . .	Miss Simpson.
Holy Ghost Hospital . .	Cambridge .	36	$12	Sister Superior.
Chicopee Tuberculosis Hospital.	Chicopee . .	28	$10	Miss Elizabeth Gorman.
Bay View Hospital . .	Fall River .	64	$14	D. H. Fuller, M.D.
Burbank Tuberculosis Hospital.	Fitchburg .	29	$14 residents, $15 non-residents.	L. F. Baker, M.D.
Haverhill Tuberculosis Hospital.	Haverhill . .	41	$10.50 residents, $15 non-residents.	M. Agnes MacDougall.
Holyoke Tuberculosis Hospital.	Holyoke . .	50	$12	Miss Margaret G. Healey.
Lawrence Tuberculosis Hospital.	Lawrence . .	88	$10.50 . . .	T. F. Joyce, M.D.
Isolation Hospital . .	Lowell . .	54	$15	F. H. Smith, M.D.
Tuberculosis Sanatorium .	Lynn . .	60	$14 residents, $15.75 non-residents.	Florence E. Daisy.
Sassaquin Sanatorium .	New Bedford .	117	$14	J. L. Wise, M.D.
Anna Jaques Hospital (Julia Moseley Ward).	Newburyport .	16	$12 residents, $20 non-residents.	Violet L. Kirke.
West Pittsfield Tuberculosis Hospital.	Pittsfield . .	20	$12	Agnes M. Kelley.
Coolidge Memorial Hospital	Pittsfield . .	8	$12	Edith M. Safford.
Salem Tuberculosis Hospital	Salem . .	34	$15	Dr. Frank Donaldson.
Health Department Hospital	Springfield .	33	$10	Dr. E. H. Guild.
Belmont Hospital (Putnam Ward).	Worcester . .	55	$10 residents, $12 non-residents.	Mary S. Holmes, M.D.

Application should be made through the local board of health for admission to the above hospitals.

TUBERCULOSIS DISPENSARIES IN MASSACHUSETTS.

Location.	Hours.	Physician.	Nurse.
Adams: Board of health	Mon. 6–7 P.M.; Tues. 3–4 P.M.	Aaron J. Bond, M.D.	Mrs. Sadie Goodermote.
Arlington: Board of health	Mon. 8–9 P.M.; Fri. 10–11 A.M.	Ezekiel Pratt, M.D.	Miss A. R. Waterhouse.
Attleboro: Sturdy Hospital	Wed. 4–5 P.M.	R. P. Kent, M.D.	Mrs. F. M. Braman.
Beverly: Board of health	Tues. 3 P.M.; Thurs. 7.30 P.M.	Daniel Murphy, M.D.	Miss Margaret Weir.
Boston: Boston Sanatorium out-patient department, 13 Dillaway Street.	Mon., Wed., Fri. 9–11 A.M.; children, Sat. 9–11 A.M.	Cleaveland Floyd, M.D.	Miss Zepha Gardner.
Massachusetts General Hospital social service department.	Wed. and Fri. 9–11 A.M.	John B. Hawes, 2d, M.D.	- - -
Boston Dispensary	Week days 9–11 A.M.	Edward O. Otis, M.D.	- - -
Brockton: Board of health	Thurs. 3.45 P.M.	Fred Ripley, M.D., James H. Drohan, M.D.	Mrs. Mary Magee.
Brookline: Board of health	Tues. 2 P.M.; Fri. 7 P.M.	Horace K. Boutwell, M.D.	Mrs. Ella Jarvis.
Cambridge: 1491 Cambridge Street	Tues. and Sat. 10 A.M.; Thurs. 7.30 P.M.	P. J. Fleming, M.D.	Miss Thatcher.
Chelsea: Board of health	Thurs. 3–4 P.M.	George Fenwick, M.D., Francis McClintock, M.D., Edward J. Powers, M.D.	Miss Phylis Albertson, Miss Helen Kelley, Miss Lillian Tyler.
Chicopee: 149 Exchange Street	Tues. 2–3 P.M.; Thurs. 7–8 P.M.	N. J. Heywood, M.D.	Miss Maud M. McCarthy.
Clinton: Board of health	Tues. 4–5 P.M.; Fri. 7.30–8.30 P.M.	P. A. S. Grady, M.D.	Miss Anna Monahan.
Everett: Board of health	Tues. 7.30–9 P.M.; Fri. 2.30–5 P.M.	Edgar Young, M.D.	Miss Edna Boutilier.
Fall River: Granite Street	Wed. 7–8 P.M.; Sat. 11–12 A.M.	Alphonse P. Gagnon, M.D.	Miss M. E. Moran.
Fitchburg: Board of health	Wed. 7–8 P.M.; Sat. 3–5 P.M.	R. E. Rice, M.D.	Miss Mabel Devlin.
Framingham: Board of health	Tues. 1–3 and 7–8 P.M.	P. C. Bartlett, M.D.	Miss Alice McAleer.
Gardner: 83 Pleasant Street	Tues. 1–2 and 7.30–8.30 P.M.; Fri. 1–2 P.M.	George Mossman, M.D.	Miss Mary Leamy.
Gloucester: Board of health	Mon. 7–8.30 P.M.; Thurs. 3–4.30 P.M.	Philip Moore, M.D.	Miss Caroline Ehlert.
Greenfield: 14 Hope Street	Tues. 7–8 P.M.; Fri. 3–5 P.M.	Frederick Barnard, M.D.	Miss Anna Koch.
Haverhill: Board of health	Tues. 7–9 P.M.; Fri. 4–6 P.M.	Arthur McLaughlin, M.D.	Miss Anne Sheehan, Miss Margaret Fraser.
Holyoke: Board of health	Mon. and Thurs. 6–7 P.M.	R. E. Cleary, M.D.	Miss Grace A. Sullivan.
Lawrence: 35 Jackson Street	Week days 8–9 A.M., 1–2 P.M.	George W. Dow, M.D.	Miss Margaret Henry, Miss Theresa Ferrin.

LOCATION.	Hours.	Physician.	Nurse.
Leominster: Board of health	Tues. 3.30–4.30 P.M.; 7.30–8.30 P.M.	F. C. Shultis, M.D.	Miss Elizabeth Murray.
Lowell: Board of health	Tues. 4–5 P.M.; Thurs. 7–8 P.M.	John H. Drury, M.D.	Miss Carroll, Miss Bertha Kerwin.
Lynn: Lynn Hospital	Wed. 1 P.M.	Armand Bedard, M.D.	Miss Julia Smith.
Malden: Pleasant Street	Wed. 7–9 P.M.; Fri. 3–5 P.M.	Samuel Hoberman, M.D.	Miss Margaret Neilson.
Marlborough: Town Hall	Mon. 4–5 P.M.; Fri. 6–7 P.M.	John H. Kelley, M.D.	Miss Mary Ahern.
Medford: Medford Building	Thurs. 7–9 P.M.	R. T. McDonald, M.D.	Miss Rebecca Walther.
Melrose: Board of health	Week days 12–1 P.M.	Clarence P. Holden, M.D.	Mrs. Myrtle Merriam.
Methuen: Board of health	Tues. 2–5 P.M.; 7–9 P.M.	Edward H. Ganley, M.D.	Miss Alice Graichen.
Milford: Main Street	Tues. 3.30 P.M.; Fri. 7.30 P.M.	Francis H. Lally, M.D.	Miss Fanny Buck.
New Bedford: Board of health	Mon. 2.30–8.30 P.M.; Wed. 5–7 P.M.; Sat. 2.30–3.30 P.M.	John M. Wise, M.D.	Mrs. H. M. Murphy, Miss A. C. Dexter, Miss K. M. McCabe.
Newburyport: 3 State Street	Wed. 10–12 A.M.	Arthur Nason, M.D.	Miss Brenda Mattice.
Newton: City Hall	By appointment	Francis G. Curtis, M.D.	Mrs. Gertrude O'Neil.
North Adams: Board of health	Tues. and Fri. 4–5 P.M.; Thurs. 7–8 P.M.	R. J. Carpenter, M.D.	Miss Edith Maxwell.
Northampton: Memorial Hall	Fri. P.M. and by appointment.	Francis E. O'Brien, M.D.	Mrs. C. J. Belden, Miss May Mooney.
Peabody: Board of health	Fri. 8–9 P.M.	Ralph E. Foss, M.D.	Miss Ethel Boyle.
Pittsfield: House of Mercy Hospital.	Wed. 7–8 P.M.; Thurs. 11–12 A.M.	E. H. Howard, M.D.	Mrs. Elizabeth Dailey.
Plymouth: Governor Bradford Building.	Thurs. 9–10.30 A.M., 7–8 P.M.	E. A. Barrows, M.D.	Mrs. D. Giovanetti.
Quincy: High School Avenue	Tues. 6–7 P.M.	T. J. McCausland, M.D.	Miss Edith C. Williamson.
Revere: Board of health	Tues. 7–8 P.M.; Fri. 4–5 P.M.	Frank Sandler, M.D.	Miss Minnie Gallagher.
Salem: 5 St. Peter Street	Wed. and Sat. 3 P.M.	G. Frank Donaldson, M.D.	Miss Edith Barker.
Somerville: Contagious Hospital	Week days 11–12 A.M.	Frank L. Morse, M.D.	Miss Lillian E. Gould.
Southbridge: Town Hall	Mon. 5–7 P.M.	J. G. E. Paige, M.D.	Miss Margaret Houle.
Springfield: 137½ State Street	Mon. 4 P.M.; Wed. 6 P.M.	Walter H. Chapin, M.D., Ernest H. Judd, M.D.	Miss Edna R. Birdsall, Mrs. A. B. Perry.
Taunton: City Hall	Tues. 10.30–12 A.M.; Fri. 6.30–8 P.M.	T. F. Clark, M.D.	Miss A. T. Carnes.
Wakefield: Board of health	Tues. 3.30–4.30 P.M.; Fri. 8.30–9.30 P.M.	Ira Richardson, M.D.	Miss Nellie Richardson.
Waltham: 781 Main Street	Thurs. 2–4 P.M.	C. B. Fuller, M.D.	Miss Marie LeBlanc.
Webster: Board of health	Mon., Wed., Fri., Sat. 10–11 A.M.; Tues. and Thurs. 4–5 P.M.	J. N. Roy, M.D.	Miss Josephine Simousky.
Westfield: Board of health	Mon. 4–5 P.M.; Thurs. 7–8 P.M.	W. J. Connery, M.D.	Mrs. Eleanor S. Barnes.

LOCATION.	Hours.	Physician.	Nurse.
Weymouth:			
Central Square	Mon. 5–6 P.M.	Fred Doucett, M.D., George Emerson, M.D.	Mrs. Catherine D. Pratt.
Winchester:			
Board of health	Mon. 3–4 P.M.; Thurs. 3–4 P.M.	M. A. Cummings, M.D.	Miss Rose Cunningham.
Winthrop:			
Board of health	By appointment	Raymond Parker, M.D.	Mrs. Abbey.
Woburn:			
Board of health	Thurs. 7–8 P.M.; Fri. 4–5 P.M.	J. M. Wilcox, M.D.	Miss M. K. Murphy.
Worcester:			
Belmont Hospital	Wed. 9–10 A.M.; Sat. 9–10 A.M.	A. C. Getchell, M.D.	Miss Margaret Boyle.

INSTITUTIONS TAKING NON-PULMONARY CASES.

Massachusetts Hospital School for Crippled Children, Canton, Mass. Free.

Home for Incurables (Girls), 2049 Dorchester Avenue, Boston, Mass. Free.

Industrial School for Crippled and Deformed Children, St. Botolph Street, Boston, Mass. (day school). Free.

Children's Mission, Boston, Mass. Places crippled children in excellent boarding places under medical supervision. $8 a week.

New England Peabody Home for Crippled Children, Jamaica Plain, Mass. If the child has parents they are asked to pay according to their means.

Children's Island Sanitarium off Marblehead. Free.

PREVENTORIA AND CAMPS.

NAME.	Location.	Management.
A Little Village of the Blue Hills and the Village Landlord.	Canton	Salvation Army.
Braewood Hospital	West Gloucester	Board of Health, Gloucester.
Camp Brookline	Bridgeton, Me.	Brookline Civic Society.
Camp Codman	Winchendon	Brookline Friendly Society.
Camp Lenox	Lee	Private organization (Mr. Sperling, Director).
Edward Thayer Camp (for adults)	Worcester	District Nursing Association.
Everett Preventorium	Fuller Street, Everett	Anti-Tuberculosis Association.
Fitchburg Camp	Lunenburg	Visiting Nurses Association of Fitchburg.
Framingham Children's Health Camp.	Framingham	Community Health and Tuberculosis Demonstration.
Hampden County Camp	Springfield	Hampden County Public Health Association and Springfield Tuberculosis Association.
Happy Health Camp	West Boxford	Lawrence Tuberculosis Association.

NAME.	Location.	Management.
Holyoke Camp	Holyoke	Holyoke Tuberculosis Association.
Malden Health Camp	Malden	Malden Health Camp Association.
Marion Goddard Camp (for children).	Worcester	District Nursing Association.
Morgan Memorial Camp (for children).	Athol	Morgan Memorial.
Pittsfield Day Camp	Lake Pontoosuc	Pittsfield Health Department.
Prendergast Camp	Mattapan (Boston)	Boston Tuberculosis Association.
Salem Tuberculosis Camp	Salem Willows	Salem Anti-Tuberculosis Association.
Summer Health and Play School	Melrose	School nurse (sponsored by benevolent organizations).
Wilmington Summer Camp	Silver Lake	Everett Board of Health.

Much credit is due various organizations not directly connected with dispensaries or hospitals for their ready co-operation in tuberculosis prevention and case-finding. The visiting nurse associations, school, community, and Red Cross nurses, are doing much to assist in many Massachusetts cities and towns.

PRIVATE SANATORIA AND BOARDING HOUSES.

NAME OF INSTITUTION.	Location.	Number of Beds.	Rate per Week.	Superintendent.
Millet Sanatorium	East Bridgewater.	35	$20 and up	C. S. Millet, M.D.
Sharon Sanatorium	Sharon	24	$20	W. A. Griffin, M.D.
Crane Sanatorium	Rutland	18	$20 and up	B. T. Crane, M.D.
Maple Lodge	Rutland	15	$20 and up	Mr. C. H. Carroll.
Kissack Cottage	Rutland	8	$20 and up	Miss Gertrude Kissack.
Summit Sanatorium	Rutland	16	$20 and up	Mrs. Edward Brown.
Wachusett Cottage	Rutland	14	$20 and up	Mrs. Minnie Clark.

HOSPITALS UNDER UNITED STATES VETERANS BUREAU.

Parker Hill Hospital, Boston, Mass.

Groton Private School, Groton, Mass.

The United States Veterans Bureau also sends patients to the Essex, Norfolk and Plymouth County Tuberculosis Hospitals.

CONSULTATION CLINICS.

These clinics are conducted by the medical staffs of the State sanatoria, and opportunity is afforded the family physician to obtain, without fee, expert diagnosis in this type of pulmonary disease.

Patients applying to these clinics must be accompanied by the family physician, or present a letter from him, giving a brief history of the case and requesting an opinion.

The Department of Public Health earnestly pleads for the co-operation of the family physician in this consultation service.

These clinics are held in the following cities: —

CITY.	Location.	Time.	Consultants.
Adams	Municipal Tuberculosis Dispensary, Greylock Bank Building.	Fourth Wednesday of each month, 2–5 P.M.	Medical Staff of the Westfield State Sanatorium.
Brockton	Municipal Tuberculosis Dispensary, Board of Health Office, City Hall.	Second Wednesday of each month, 2–5 P.M.	Medical Staff of the Lakeville State Sanatorium.
Clinton	Municipal Tuberculosis Dispensary, Municipal Building.	Fourth Wednesday of each month, 2–5 P.M.	Medical Staff of the Rutland State Sanatorium.
Fall River	Municipal Tuberculosis Dispensary, Granite Street.	Third Wednesday of each month, 2–5 P.M.	Medical Staff of the Lakeville State Sanatorium.
Fitchburg	Municipal Tuberculosis Dispensary, 444 Water Street.	Third Wednesday of each month, 2–5 P.M.	Medical Staff of the Rutland State Sanatorium.
Gardner	Municipal Tuberculosis Dispensary, 83 Pleasant Street.	Second Wednesday of each month, 2–5 P.M.	Medical Staff of the Rutland State Sanatorium.
Haverhill	Municipal Tuberculosis Dispensary, City Hall.	Third Wednesday of each month, 2–5 P.M.	Medical Staff of the North Reading State Sanatorium.
Holyoke	Municipal Tuberculosis Dispensary, City Hall Annex, Room 412.	Third Wednesday of each month, 2–5 P.M.	Medical Staff of the Westfield State Sanatorium.
Lawrence	Municipal Tuberculosis Dispensary, 37 Jackson Street.	Second Wednesday of each month, 2–5 P.M.	Medical Staff of the North Reading State Sanatorium.
Lowell	Municipal Tuberculosis Dispensary, City Hall.	First Wednesday of each month, 2–5 P.M.	Medical Staff of the North Reading State Sanatorium.
Pittsfield	Municipal Tuberculosis Dispensary, House of Mercy Hospital.	First Wednesday of each month, 2–5 P.M.	Medical Staff of the Westfield State Sanatorium.
Plymouth	Municipal Tuberculosis Dispensary, Room G, Governor Bradford Building, Town Square.	Fourth Wednesday of each month, 2–5 P.M.	Medical Staff of the Lakeville State Sanatorium.
Springfield	Municipal Tuberculosis Dispensary, 137½ State Street.	Second Wednesday of each month, 2–5 P.M.	Medical Staff of the Westfield State Sanatorium.
Taunton	Municipal Tuberculosis Dispensary, City Hall.	First Wednesday of each month, 2–5 P.M.	Medical Staff of the Lakeville State Sanatorium.
Woburn	Municipal Tuberculosis Dispensary, Board of Health Rooms.	Fourth Wednesday of each month, 2–5 P.M.	Medical Staff of the North Reading State Sanatorium.
Worcester	Municipal Tuberculosis Dispensary, Belmont Hospital.	First Wednesday of each month, 2–5 P.M.	Medical Staff of the Rutland State Sanatorium.

Facilities for consultations are also found at each State Sanatorium on any day of the week (Saturday, Sunday and holidays excepted) between the hours of 2 and 5 P.M.

MASSACHUSETTS TUBERCULOSIS LEAGUE.

FIELD NURSES.

Miss A. Gertrude Hines, North Middlesex District.
Miss M. Alice Gallagher, Norfolk County District.
Miss Daisy Hanscom, Bristol and Plymouth Districts.
Miss Tessie O'Neil, South Worcester County District.
Miss Elsie Smith, Franklin County District.
Miss May Mooney, Hampshire County District.
Miss Margaret Crocken, Hampden County District.

TUBERCULOSIS ASSOCIATIONS.

Berkshire Tuberculosis Association. *President*, Dr. Robert J. Carpenter, North Adams; *Secretary*, Dr. P. J. Sullivan, Dalton.

Beverly Anti-Tuberculosis Society. *President*, Frances R. Kilham; *Secretary*, Mrs. Louis P. Baker.

Boston Tuberculosis Association. *President*, Dr. John B. Hawes, 2d; *Executive Secretary*, Bernice W. Billings.

Bristol County Public Health Association. *President*, Dr. Arthur R. Crandall, Taunton; *Executive Secretary*, Daisy Hanscom, Taunton.

Brockton Anti-Tuberculosis Society. *President*, Dr. Fred J. Ripley; *Secretary*, Mrs. J. Frank Coffey.

Cambridge Anti-Tuberculosis Association. *President*, Dr. Eugene A. Darling; *Executive Secretary*, Mrs. Mabel Greeley Smith.

Chelsea Women's Public Safety Committee. *President*, Mrs. E. Frank Guild; *Secretary*, Mrs. Timothy J. Burns.

Clinton-Lancaster Tuberculosis Association. *President*, Dr. Walter P. Bowers, Clinton; *Secretary*, Katherine V. Parker, South Lancaster.

Everett Tuberculosis League. *President*, Mrs. George A. Brown.

Fall River Anti-Tuberculosis Society. *President*, Dr. John H. Lindsey; *Secretary*, Thomas Chew.

Fitchburg Health Building Committee of Visiting Nurse Association. *Chairman*, Mrs. Charles E. Ware.

Franklin County Public Health Association. *President*, Mrs. W. H. P. Gilmore, Turners Falls; *Executive Secretary*, Elsie F. Smith, Greenfield.

Gardner Association for the Relief and Control of Tuberculosis. *President*, Mrs. James A. Stiles; *Secretary*, Mary Leamy.

Gloucester Anti-Tuberculosis Association. *President*, Dr. Elmer W. Babson; *Secretary*, Mrs. George D. Winchester.

Hampden County Tuberculosis and Public Health Association. *President*, Dr. Parker M. Cort, Springfield; *Executive Secretary*, James Jenkins, Jr., Springfield.

Hampshire County Public Health Association. *President*, Dr. E. E. Thomas, Northampton; *Executive Secretary*, May Mooney, Northampton.

Holyoke Society for the Prevention of Tuberculosis. *President*, Dr. George Dallas Henderson; *Secretary*, Katherine Ranger.

Lawrence Tuberculosis League. *President*, Mrs. Louis S. Cox.

Lynn Tuberculosis League. *President*, Dr. William T. Hopkins; *Secretary*, Mrs. Carolyn M. Engler.

Malden Anti-Tuberculosis Society. *President*, Dr. Charles E. Prior; *Secretary*, Mrs. J. Gy. Green.

New Bedford Anti-Tuberculosis Association. *President*, William B. Geoghegan; *Secretary*, William W. Batchelder.

Newton Welfare Bureau. *President*, Joseph B. Jamieson, Newton Centre; *General Secretary*, Mrs. Carrie Hull, Newtonville.

Norfolk County Public Health Association. *President*, Dr. Francis P. Denny, Brookline; *Secretary*, Frederic Edwards, Boston.

Northern Essex Public Health Association. *President,* Dr. Israel J. Clarke, Haverhill; *Secretary,* Harriet E. Baxter, Haverhill.

Northern Middlesex Tuberculosis League. *President,* Rev. Arthur G. Lyon, Lowell; *Welfare Nurse,* A. Gertrude Hines, Lowell.

Public Health Association of Barnstable County. *President,* G. Webster Hallett, Osterville; *Executive Secretary,* Elmer W. Howes, Dennis.

Salem Association for the Prevention of Tuberculosis. *President,* Josiah H. Gifford; *Executive Secretary,* Edith H. Barker.

Somerville Visiting Nurse Association. *President,* Mrs. E. H. Kyle; *Secretary,* Mrs. Eden C. Hall.

Southern Worcester Public Health Association. *President,* Raymond Fletcher, Shrewsbury; *Executive Secretary,* Tessie O'Neil, Worcester.

The Public Health Association of Southwestern Middlesex County. *President,* Dr. E. H. Ellis, Marlborough; *Temporary Secretary,* Paul Ladd, Framingham.

Waltham Visiting Nurse Association. *President,* Mrs. Henry A. Wood.

Worcester Society for District Nursing. *President,* Harriet E. Clarke; *Director,* Rosebelle Jacobus; *Educational Worker,* Mrs. Alice P. Holt.

EXTRACTS FROM LAWS IN REGARD TO TUBERCULOSIS.

(For full details see chapter 111 of General Laws.)

Section 29. — Boards of health shall make weekly reports of deaths from tuberculosis to the State Department.

Section 57. — Every city and town with a population of 10,000 or more shall establish and maintain a dispensary for discovery, treatment and supervision of needy persons afflicted with tuberculosis.

Section 76. — Every town placing its patients suffering from tuberculosis in a county, municipal or incorporated hospital in the Commonwealth shall receive a subsidy of $5 for each patient who has a legal settlement therein who is unable to pay.

Sections 78 and 81. — Counties, except Barnstable, Hampshire, Suffolk, Nantucket and Dukes, shall provide adequate hospital care before Sept. 1, 1925, for tuberculous patients in towns of less than 50,000, where no provision is made. The capacity of each hospital shall be at least 50 beds.

Section 88. — Patients are admitted in order of application to county hospitals, through town boards of health. Charges shall be based on actual cost of care and treatment, and shall be paid by the town if the patient is unable.

Section 89. — The construction of county hospitals and additions to existing hospitals will be subject to approval by the State Department.

Section 92. — Cities and towns with a population of 50,000 shall provide and maintain hospitals for tuberculosis. District health officers shall examine annually both private and public institutions for tuberculosis.

Section 109. — A householder who knows that a person in his family or house is sick with tuberculosis shall notify the board of health in his town.

Section 111. — If a physician knows that a person whom he visits has tuberculosis, he shall give written notice to the town board of health.

Section 112. — If the town board of health has had notice of a case of tuberculosis, it shall report the name and location of the patient to the State Department within twenty-four hours.

ORDERS OF INVESTIGATION.

The Department of Public Health is directed to investigate the entire subject of tuberculosis in the Commonwealth, including the matter of State, county and municipal tuberculosis hospitals. The report must be made by the second Wednesday in January, 1923.

The feasibility of providing new or additional hospital accommodations for the treatment of surgical or non-pulmonary tuberculosis shall be reported by the Department of Public Health not later than next January.

REGULATIONS CONCERNING TUBERCULOSIS OF CATTLE.

(Full laws in chapter 129 of General Laws.)

Section 11. — The director or one of his agents may cause a tuberculous animal to be securely isolated or killed. The order, issued in writing, shall contain direction as to examination and disposal of the carcass and the cleansing and disinfection of the premises.

Section 19. — Inspectors shall make regular and thorough inspections of all neat cattle in their respective towns.

Section 21. — An inspector shall cause an infected animal to be quarantined, and shall take other sanitary measures to prevent the spread of disease. He shall also give written notice to owner of said cattle, and shall keep record of the notice.

Section 23. — Inspectors shall likewise examine the general condition and cleanliness of places where cattle are kept.

Section 27. — Animals brought into the State from infected places may be seized and quarantined.

Section 28. — The board of health of a town, or any person who has knowledge of the existence of contagious disease among cattle, shall give written notice thereof to the inspector of the town.

Section 33. — An owner of cattle, wishing to eradicate tuberculosis in his cattle, may request the Director of Animal Industry to have a tuberculin test applied, in accordance with section 33, chapter 129 of the General Laws, as amended by section 3, chapter 353, Acts of 1922.

RULES AND REGULATIONS GOVERNING THE LICENSING OF DISPENSARIES.

1. A dispensary shall be located in a suitable situation, shall occupy a sufficient number of rooms which shall be adequately ventilated and lighted, shall have reasonable access to adequate sanitary conveniences, and shall be kept clean.
2. The equipment for advice and treatment of patients shall be adequate.
3. Whenever female patients are admitted a female attendant shall be on duty.
4. A statement of the conditions of admission of patients, the schedule of charges made, and the hours during which the dispensary is open for patients shall be conspicuously posted.
5. Such clinical record of each patient as the Department of Public Health prescribes shall be kept on file and shall be open at any time to inspection by the Department of Public Health through its agents.

Approved by the Department of Public Health Jan. 21, 1919; amended May 13, 1919.

BOOKS ON TUBERCULOSIS.

With a wealth of literature to guide healthy people in avoiding tuberculosis and patients in their fight against the disease, there is no excuse for either ignorance or carelessness. The following groups of titles may be helpful to those interested in forming collections on certain phases of the subject. They do not pretend to be inclusive. It should be noted, also, that these lists include only books dealing especially with tuberculosis. For annotations and descriptions of each book see page 249. Prices subject to change without notice.

PATIENTS' LIBRARY.

AUTHOR.	Title.	Publisher.	Price.
Brown, Lawrason	Rules for Recovery from Pulmonary Tuberculosis.[1]	Lea & Febiger	$1 50
Flick, L. P.	Consumption, a Curable and Preventable Disease.	P. Reilly	1 00
Galbreath, T. C.	T. B. Playing the Lone Game Consumption.[1]	Journal of the Outdoor Life Publishing Company.	25
Hawes, J. B.	Consumption, What It is and What to Do About It.	Small, Maynard & Co.	1 25
King, D. MacD.	Battle with Tuberculosis and How to Win It.[1]	Lippincott	2 00
Otis, E. O.	Tuberculosis: its Cause, Cure and Prevention.	Crowell & Co.	2 00
Trudeau, E. L.	An Autobiography	Doubleday, Page & Co.	4 00
Wittich, F. W.	Information for the Tuberculous	Mosby	1 50

[1] Every patient should at least have these books on his book-shelf.

NURSES' LIBRARY.

Brown, Lawrason	Rules for Recovery from Pulmonary Tuberculosis.[1]	Lea & Febiger	$1 50
Cobbett, L.	The Causes of Tuberculosis	Cambridge University Press	8 00
Hawes, J. B.	Early Pulmonary Tuberculosis	W. Wood	1 50
Otis, E. O.	Pulmonary Tuberculosis	Leonard	3 50
Trudeau, E. L.	An Autobiography[1]	Doubleday, Page & Co.	4 00
Walters, F. R.	Open Air or Sanatorium Treatment[1]	W. Wood	2 25

A list of pamphlets issued by the National Tuberculosis Association, 370 Seventh Avenue, will be sent on request. Some of the pamphlets are free, others vary from 5 to 25 cents. Price per set of 20, $1.20.

[1] Of special value for tuberculosis nurses.

PHYSICIANS' LIBRARY.

Brown, Lawrason	Rules for Recovery from Pulmonary Tuberculosis.[1]	Lea & Febiger	$1 50
Bushnell, G. E.	A Study in the Epidemiology of Tuberculosis.	W. Wood	3 00
Cobbett, L.	The Causes of Tuberculosis	Cambridge University Press	8 00
Fishberg, M.	Pulmonary Tuberculosis	Lea & Febiger	7 50
Hamman, L. V., and Wolman, S.	Tuberculin in Diagnosis and Treatment.	Appleton	4 50
Hawes, J. B.	Early Pulmonary Tuberculosis[1]	W. Wood	1 50
Much, Hans	Tuberculosis of Children (translated by Max Rothschild).	Macmillian	2 50
Otis, E. O.	Pulmonary Tuberculosis[1]	Leonard	3 50
Pottenger, F. M.	Clinical Tuberculosis (2 vols.)	Mosby	14 00
Riviere, Clive	Pneumothorax Treatment of Pulmonary Tuberculosis.	Oxford University Press	2 00
Riviere, Clive	Early Diagnosis of Tubercle	Oxford University Press	3 70
Trudeau, E. L.	An Autobiography	Doubleday, Page & Co.	4 00
Walters, F. R.	Open Air or Sanatorium Treatment of Pulmonary Tuberculosis.[1]	W. Wood	2 25
National Tuberculosis Association.	Directory of Sanatoria and Hospitals in the United States.	– –	60

[1] Should be in every physician's library.

Public Library.

Author.	Title.	Publisher.	Price.
Brown, Lawrason .	Rules for Recovery from Pulmonary Tuberculosis.[1]	Lea & Febiger . . .	$1 50
Cobbett, L. . .	The Causes of Tuberculosis . .	Cambridge University Press	8 00
King, D. MacD. .	Battle with Tuberculosis and How to Win It.	Lippincott	2 00
Otis, E. O. . .	Tuberculosis: Its Cause, Cure and Prevention.[1]	Crowell & Co. . . .	2 00
Otis, E. O. . . .	Pulmonary Tuberculosis[1] . . .	Leonard	3 50
Trudeau, E. L. . .	An Autobiography	Doubleday, Page & Co. .	4 00
Walters, R. F. . .	Open Air or Sanatorium Treatment of Pulmonary Tuberculosis.	W. Wood	2 25
Wittich, F. W. . .	Information for the Tuberculous .	Mosby	1 50

[1] Even the small public library should have these books.

Tuberculosis Association Library.

Brown, Lawrason .	Rules for Recovery from Pulmonary Tuberculosis.	Lea & Febiger . . .	$1 50
Cobbett, L. . .	The Causes of Tuberculosis . .	Cambridge University Press	8 00
Flick, L. P. . .	Consumption, a Curable and Preventable Disease.	P. Reilly	1 00
Galbreath, T. C. .	T. B. Playing the Lone Game Consumption.	Journal of the Outdoor Life Publishing Company.	25
Hawes, J. B. . .	Consumption, What It is and What to Do About It.	Small, Maynard & Co. .	1 25
Hawes, J. B. . .	Early Pulmonary Tuberculosis . .	W. Wood	1 50
King, D. MacD. . .	Battle with Tuberculosis and How to Win It.	Lippincott	2 00
Otis, E. O. . . .	Pulmonary Tuberculosis . . .	Leonard	3 50
Otis, E. O. . . .	Tuberculosis: Its Cause, Cure and Prevention.	Crowell & Co. . . .	2 00
Trudeau, E. L. . .	An Autobiography	Doubleday, Page & Co. .	4 00
Walters, F. R. . .	Open Air or Sanatorium Treatment .	W. Wood	2 25
Wittich, F. W. . .	Information for the Tuberculous .	Mosby	1 50

Annotation and Description of Books.

The little book, "Rules for Recovery from Pulmonary Tuberculosis," by Dr. Lawrason Brown, has been written to help patients avoid blunders which are very easily made at first, but very apparent to any patient who knows the problem. The author is so well known that rules which he has found helpful will surely prove equally valuable to other physicians.

While Dr. Otis has designed "Tuberculosis: Its Cause, Cure and Prevention," primarily for laymen, it is the kind of standard treatise on tuberculosis that any physician may well keep on his shelves for reference.

In his book, "Pulmonary Tuberculosis," Dr. Otis has combined with rare skill the essential knowledge the physician should have about tuberculosis and the information the layman should possess. The book is really a medical work for lay readers. It is strongly recommended to all workers in the tuberculosis field.

Dr. Flick's "Consumption, a Curable and Preventable Disease," is also designed primarily for laymen, but both because of the eminence of its author in the tuberculosis field and the excellence of the work, it will prove a valuable addition to any physician's library.

In the book, "The Battle with Tuberculosis and How to Win It," Dr. King has used the popular war spirit. Employing the analogy of the tubercle bacillus as the attacking enemy, and the patient as the defender, he has conveyed a vast amount of information about home and sanatorium care of tuberculosis, in readable form.

Dr. Wittich, himself a patient, and a successful physician, has written "Information for the Tuberculous" primarily for patients. It deals with most of the perplexing problems, such as rest, exercise, food, temperature, pulse, drugs, etc., that come in the routine of home or sanatorium treatment.

A popular book on tuberculosis by a recognized authority is "Consumption, What It is and What to Do About It," by Dr. Hawes, who treats of the nature of the disease, home and institutional treatment, marriage and consumption, tuberculosis in childhood, and a host of other topics a layman should know about, all in a readable, interesting way.

Dr. Bushnell rounds out a lifetime research on the influence of tuberculosis among the primitive peoples, especially the Indians and Negroes, with his book, "A Study in the Epidemiology of Tuberculosis."

In "Tuberculosis of Children," Dr. Hans Much describes his treatment, which he calls the partigen (partial antigens) treatment. He bases his work on the theory that the cure is entirely dependent upon immunity. Although many physicians may not agree with Much's premises, the book will be of interest to those unacquainted with his work.

Dr. Trudeau has woven into his "Autobiography" in simple, direct and fascinating style all of the essential incidents and experiences of his life. It is at once a history of, and an inspiration to, great achievement.

In "Pulmonary Tuberculosis," Dr. Fishberg gives the treatment of phthisis based on experience with patients in New York City. The emphasis is laid, however, on the benefit of rest, fresh air and proper food in home as well as in institution. Medical treatment has not been neglected, because it is in many cases of more value than some have recently been inclined to think.

Dr. Pottenger's "Clinical Tuberculosis" is a complete treatise taking up pathology, anatomy, diagnosis, prognosis, complications and treatment.

In "Early Pulmonary Tuberculosis," Dr. John Hawes takes up the subject in a systematic, concise manner, devoting a chapter each to the important facts of the family history, work and habits, present illness, physical examination, diagnosis, prognosis and treatment.

The essential elements of diagnosis in the two conditions where it seems most urgently needed — in early pulmonary tuberculosis of adults and in tuberculosis of thoracic glands and hilus tuberculosis in children — is given in "The Early Diagnosis of Tubercle," by Dr. Riviere.

Dr. Riviere, in his "Pneumothorax Treatment of Pulmonary Tuberculosis," has performed a real service in bringing together under one cover in concise form the best information available concerning the use of artificial pneumothorax.

"Tuberculin in Diagnosis and Treatment," by Dr. Hamman and Dr. Wolman, places the subject of tuberculin within the grasp of every physician.

"The Causes of Tuberculosis," by Dr. Cobbett, is addressed to those who are interested in the preventive movement against tuberculosis. The book brings together from the point of view of the pathologist and in scientific form a mass of valuable material that any worker in the anti-tuberculosis campaign should have at his disposal.

Dr. Walters has summed up in brief compass the essential facts with regard to the treatment of tuberculosis in "The Open Air or Sanatorium Treatment of Pulmonary Tuberculosis." It is an invaluable aid to nurses, physicians and all others who come into direct contact with tuberculosis patients. It is an excellent companion book to Brown's "Rules for Recovery from Pulmonary Tuberculosis."

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of June and July, 1922, samples were collected in 103 cities and towns.

There were 1,606 samples of milk examined, of which 518 were below standard, 47 samples had the cream removed, 51 samples contained added water, and 1 sample was skimmed milk below the legal standard.

There were 84 samples of food examined, of which 11 were adulterated. These consisted of 5 samples of cream which contained added milk solids; and 6 samples of vinegar which were low in acid.

There were 72 samples of drugs examined, of which 17 were adulterated. These consisted of 2 samples of camphor liniment which were low in camphor; 1 sample of lime water which was low in lime; and 14 samples of magnesium citrate which contained sulphate.

There were 33 hearings held pertaining to violations of the food and drug laws.

The police departments submitted 976 samples of liquor for examination, 901 of which were above 2.75 per cent in alcohol. The police departments also submitted 43 samples of poisons for examination, 29 of which were morphine, 4 cocaine, 6 opium, and 4 samples were examined for poison with negative results.

There were 34 convictions for violations of the law, $1,140 in fines being imposed.

Bernard J. Connolly of Taunton, Fred W. Jerome of South Hadley, Bagdasai Yokhsoolian of Lawrence, John Kennedy of Whately, Abraham Ojala of Rockport, Mathias Till of Adams, George H. Peck of South Hanson, Joseph Glowacki (2 cases) of

Andover, John Kalp of Dracut, Oscar Maka of Ashburnham, Joseph Maquin of North Westport, Wiano Nikander of Fitchburg and Samuel W. Rubin of Malden were all convicted for violations of the milk laws. Bernard J. Connolly of Taunton, Bagdasai Yokhsoolian of Lawrence and Abraham Ojala of Rockport appealed their cases.

Adjutor Dupuis, Hyman Leviss and The I. Renaud Company, all of Fall River, and Simon Bazar and Joseph Hornstein, both of Providence, R. I., were all convicted for violations of the food laws. Simon Bazar and Joseph Hornstein of Providence, R. I., appealed their cases.

William C. Bruzgas (2 cases) of Norwood was convicted for violation of the drug laws.

Julius Kronick of North Adams was convicted for false advertising.

Walter B. Skinner and Edward A. Thayer, both of Braintree, and Austin L. Norcross of Wenham were all convicted for violations of the slaughtering laws. Edward A. Thayer of Braintree appealed his case.

Philip Gorinstein, Paul Montalbano, Samuel Solomon, Rubin Warshaver, Fellows & Co., Charles Levine and Joseph Rosenbloom, all of Boston, and Hyman Young of Chelsea were all convicted for violations of the mattress law. Samuel Solomon and Rubin Warshaver of Boston appealed their cases.

Bagdasai Yokhsoolian of Lawrence was convicted for selling milk without having his name or license number on the wagon. He appealed his case.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Milk which contained added water was produced as follows: 9 samples, produced by George H. Peck of South Hanson; 5 samples, produced by Charles Menard of Fall River; 4 samples, produced by Walter C. Dobra of North Attleborough; 3 samples, produced by John Waino of Fitchburg; 2 samples, produced by May Bernard of Oak Bluffs; and 1 sample, produced by Thomas Lewis of Oak Bluffs.

Milk having the cream removed was produced as follows: 5 samples, produced by Mathias Till of Adams; 3 samples, produced by Michael Porazzo of Norwood; and 1 sample each, produced by N. B. Madison of Gay Head, Antone Duart of Vineyard Haven, Albert Bourque of North Westport, Myron Zaskey of Amherst, and Oscar Maka of Ashburnham.

Vinegar which was low in acid was sold as follows: 3 samples, by The I. Renaud Company of Fall River; 2 samples, by Korman Water Company of Fall River; and 1 sample, by Universal Bottling Company of New Bedford.

There were thirteen confiscations, consisting of 211 pounds of decomposed chickens, 9,270 pounds of decomposed beef, 30 pounds of tainted beef, 9,800 pounds of decomposed ciscoes, 3,800 pounds of dried-out haddock, and 63 pounds of decomposed lobster meat.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of May, 1922: 7,101,510 dozens of case eggs, 412,772 pounds of broken-out eggs, 1,411,481 pounds of butter, 1,007,766 pounds of poultry, 4,135,832½ pounds of fresh meat and fresh meat products, and 3,233,019½ pounds of fresh food fish.

There were on hand June 1, 1922, 15,804,375 dozens of case eggs, 662,735 pounds of broken-out eggs, 1,042,414 pounds of butter, 4,021,796½ pounds of poultry, 17,116,107 pounds of fresh meat and fresh meat products, and 6,295,813 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of June, 1922: 3,861,240 dozens of case eggs, 538,298 pounds of broken-out eggs, 10,716,466 pounds of butter, 1,005,787 pounds of poultry, 4,611,018½ pounds of fresh meat and fresh meat products, and 3,900,114 pounds of fresh food fish.

There were on hand July 1, 1922, 18,427,385 dozens of case eggs, 989,049 pounds of broken-out eggs, 10,414,119 pounds of butter, 3,713,450 pounds of poultry, 18,846,863 pounds of fresh meat and fresh meat products, and 9,153,055 pounds of fresh food fish.

RÉSUMÉ OF COMMUNICABLE DISEASES.

May, 1922.

General Prevalence.

There were 8,887 cases of communicable disease reported in May as compared with 8,399 cases reported in April, an increase of 488 cases. This is only a slight increase when it is noted that there was a decrease of 1,695 cases in April from the March total. The increase was chiefly in the cases of measles reported, the total being 557 higher than April. The other so-called "common" communicable diseases showed only slight variations.

Chicken pox was reported in 433 instances, an increase of but 13 cases over last month and about the usual number.

Diphtheria decreased in incidence, there being 558 cases reported as compared with 578 for April.

Dog bite requiring antirabic treatment was reported in 23 instances. This condition is still increasing rapidly in the number of reports received.

There were 10 cases of *epidemic cerebrospinal meningitis* reported, about the usual number of cases.

Encephalitis lethargica was reported in 29 instances. This is less than the total for last month, but is still much higher than 1921.

Gonorrhea and syphilis decreased in the number of reports received from April, there being 378 cases of the former and 140 of the latter reported.

German measles has been increasing slowly but steadily since August of last year, when there were but 10 cases reported. The total for this month is 96.

Measles also has shown a steady increase since the middle of last year. The total for May was 4,160, an increase of 557 cases over April.

There were 514 cases of *mumps* reported in May, about the monthly average for this year.

Lobar pneumonia was reported in 417 instances, which is 43 cases more than were reported during May of 1921.

Scarlet fever also showed a slight increase over last year as well as over the previous month, with 757 reported cases.

Tuberculosis, pulmonary, was reported in 605 instances, and *tuberculosis, other forms,* in 120 instances. This increase over the previous month seemed to come from all sections of the State, and apparently was not the result of any particular survey or effort toward increased reporting.

Typhoid fever, with 36 reported cases, continues to show an unusually low figure. The deaths for the first four months of 1922 (15) are also of interest compared to the 26 deaths from this disease which occurred during the same period of 1921. If the same proportion of decrease continues throughout the year there should be not over 70 deaths from this condition in 1922 as compared with 119, the total for 1921.

Whooping cough, with 416 cases, has increased slightly over last month, but is less than the reported incidence for the same month of last year.

RARE DISEASES.

Actinomycosis was reported from Boston, 1.

Dog bite requiring antirabic treatment was reported from Arlington, 4; Cambridge, 2; Chelsea, 2; Lexington, 2; Lowell, 11; Melrose, 1; Newton, 1; total, 23.

Dysentery was reported from Cambridge, 1; Maynard, 1; Milton, 1; total, 3.

Encephalitis lethargica was reported from Boston, 9; Brockton, 1; Brookline, 1; Chelsea, 3; Danvers, 1; Everett, 3; Fall River, 1; Foxborough, 1; Lawrence, 1; Lynn, 2; Milton, 1; New Bedford, 1; South Hadley, 1; Taunton, 1; West Springfield, 1; Worcester, 1; total, 29.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Boxborough, 1; Everett, 1; Haverhill, 1; Lawrence, 1; Revere, 1; Springfield, 1; Williamsburg, 1; total, 10.

Hookworm was reported from Boston, 1.

Malaria was reported from Boston, 2; Fall River, 1; Framingham, 1; total, 4.

Pellagra was reported from Danvers, 1; Rockport, 1; total, 2.

Septic sore throat was reported from Boston, 3; Cambridge, 1; Haverhill, 1; New Bedford, 1; Topsfield, 1; total, 7.

Tetanus was reported from Leominster, 1; Salem, 1; Worcester, 1; total, 3.

Trachoma was reported from Boston, 8; East Walpole, 1; Everett, 1; Lowell, 2; Lynn, 2; total, 14.

Trichinosis was reported from Boston, 1.

DISTRIBUTION.

All Communicable Diseases.

	May, 1922.	May, 1921.
Total cases (all causes)	8,887	7,338
Case rate per 100,000 population	225.8	188.0

Certain Prevalent Diseases.

	May, 1922.	May, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:			Fairhaven	(1)	6
Total cases	558	644	New Bedford	(9)	20
Case rate per 100,000 population	14.2	16.5	Boston	(218)	234
			Arlington	(1)	6
			Lowell	(13)	18
			Woburn	(2)	12
Measles:			Wareham	(6)	24
Total cases	4,160	2,449	Boston	(411)	907
Case rate per 100,000 population	125.7	62.8	Brookline	(54)	163
			Cambridge	(243)	413
			Holbrook	(0)	7
			Newton	(45)	128
			Norwood	(4)	19
			Quincy	(28)	285
			Walpole	(2)	81
			Ipswich	(1)	21
			Lynn	(43)	63
			Marblehead	(1)	84
			Peabody	(3)	20
			Salem	(4)	181
			Concord	(6)	108
			Lawrence	(5)	120
			Methuen	(1)	69
			Somerville	(45)	105
			Waltham	(51)	65
			Watertown	(11)	36
			Ashburnham	(0)	26
			Athol	(4)	66
			Webster	(0)	31
			Chicopee	(5)	46
			Holyoke	(11)	70
			Northampton	(26)	39
			Springfield	(30)	253
			Westfield	(3)	9
Scarlet fever:			Wareham	(0)	9
Total cases	757	649	Bridgewater	(0)	9
Case rate per 100,000 population	19.2	16.6	Brockton	(3)	62
			Easton	(0)	8
			Whitman	(1)	9
			Malden	(7)	26
			Belmont	(1)	11
			Methuen	(3)	15
			Somerville	(13)	29
Typhoid fever:					
Total cases	36	167			
Case rate per 100,000 population	.9	4.3			
Whooping cough:			Framingham	(1)	16
Total cases	416	487	Hingham	(0)	61
Case rate per 100,000 population	10.6	12.5	Wellesley	(2)	17
			Haverhill	(9)	14
			Chelmsford	(0)	6
			Fitchburg	(0)	8
			Springfield	(5)	17
Tuberculosis, pulmonary:					
Total cases	605	521			
Case rate per 100,000 population	15.4	13.4			
Tuberculosis, other forms:					
Total cases	120	67			
Case rate per 100,000 population	3.0	1.7			

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

June, 1922.

GENERAL PREVALENCE.

There were 6,846 cases of communicable diseases reported for this month as against 8,793 for May.

Chicken Pox. — There were 325 cases reported for this month.

Diphtheria decreased from 558 cases for May to 459 cases for June.

Dog bite requiring antirabic treatment was reported in 29 instances. This is a larger number than was ever before reported.

Encephalitis lethargica was reported in 5 instances.

Epidemic cerebrospinal meningitis was reported in 13 instances.

German measles decreased from 96 cases for May to 52 cases for June.

Gonorrhea and Syphilis. — There were 381 cases of gonorrhea and 126 cases of syphilis reported.

Influenza was reported in about the usual numbers. There were 11 cases for June, 1922, and 12 cases for June, 1921.

Measles has begun its annual decline. There were 3,198 cases reported for this month and 4,159 for last month.

Mumps decreased from 514 cases for May to 375 for this month.

Pneumonia, Lobar. — There were 139 cases reported for this month.

Scarlet fever decreased from 755 cases for last month to 470 for this month.

Tuberculosis, Pulmonary. — There were 614 cases reported for this month.

Tuberculosis, other forms, was reported in 130 instances. There were 105 cases reported for last month. In both months the incidence was unusually high.

Typhoid Fever. — There were 41 cases reported for the month.

Whooping cough decreased from 415 cases for May to 359 for this month.

RARE DISEASES.

Anterior poliomyelitis was reported from Lawrence, 1; Lowell, 1; Somerville, 2; total, 4.

Dog bite requiring antirabic treatment was reported from Brookline, 3; Cambridge, 1; Holyoke, 2; Lowell, 17; Newton, 1; Plymouth, 1; Swampscott, 2; Winthrop, 2; total, 29.

Encephalitis lethargica was reported from Boston, 3; Cambridge, 1; Taunton, 1; total, 5.

Epidemic cerebrospinal meningitis was reported from Boston, 4; Concord, 1; Hingham, 1; Lawrence, 1; Lowell, 2; Lynn, 1; Northampton, 1; Peabody, 1; Wrentham, 1; total, 13.

Malaria was reported from Boston, 3; Everett, 1; Holyoke, 1; total, 5.

Septic sore throat was reported from Amherst, 1; Boston, 1; Fall River, 1; Somerville, 2; total, 5.

Smallpox was reported from Milford, 1.

Trachoma was reported from Boston, 4; Cambridge, 1; Lynn, 1; Medway, 1; New Bedford, 1; Somerville, 1; total, 9.

Trichinosis was reported from Holyoke, 1.

DISTRIBUTION.

All Communicable Diseases.

	June, 1922.	June, 1921.
Total cases (all causes)	6,846	6,058
Case rate per 100,000 population	173.9	155.5

Certain Prevalent Diseases.

	June, 1922.	June, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:			Fall River	(13)	26
Total cases	459	623	New Bedford	(11)	22
Case rate per 100,000 population	11.7	16.0	Boston	(175)	188
			Brockton	(9)	14
			Hull	(0)	5
			Peabody	(3)	8
			Pittsfield	(2)	7
Measles:			Provincetown	(0)	11
Total cases	3,199	1,635	Wareham	(4)	21
Case rate per 100,000 population	81.3	41.9	Boston	(641)	749
			Brockton	(4)	19
			Brookline	(37)	78
			Cambridge	(141)	238
			Dedham	(0)	9
			Hanover	(0)	12
			Holbrook	(0)	30
			Marshfield	(0)	13
			Medfield	(0)	19
			Newton	(14)	93

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

Certain Prevalent Diseases — Concluded.

	June, 1922.	June, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.		
			Norwood	(3)	73
			Quincy	(30)	75
			Walpole	(4)	35
			Wellesley	(1)	14
			Beverly	(2)	73
			Chelsea	(16)	39
			Marblehead	(1)	37
			Melrose	(12)	67
			Salem	(8)	66
			Arlington	(7)	70
			Concord	(4)	11
			Lawrence	(11)	42
Measles:			Methuen	(2)	27
Total cases	3,199	1,635	North Andover	(0)	8
Case rate per 100,000 population	81.3	41.9	Somerville	(58)	65
			Watertown	(8)	17
			Athol	(3)	29
			Dudley	(0)	15
			Millbury	(0)	19
			Webster	(5)	64
			Chicopee	(4)	16
			Holyoke	(7)	76
			Longmeadow	(1)	18
			Monson	(1)	10
			Northampton	(28)	78
			Springfield	(93)	312
			West Springfield	(3)	14
			Dalton	(0)	12
			Fall River	(7)	13
			New Bedford	(13)	18
			Plymouth	(1)	5
			Boston	(95)	107
			Brockton	(9)	20
Scarlet fever:			Newton	(1)	15
Total cases	470	492	Whitman	(0)	7
Case rate per 100,000 population	11.9	12.6	Everett	(5)	10
			Malden	(5)	10
			Belmont	(0)	6
			Lowell	(6)	18
			Somerville	(12)	19
			Watertown	(1)	6
			Pittsfield	(2)	15
Typhoid fever:					
Total cases	41	58	Randolph	(0)	5
Case rate per 100,000 population	1.0	1.5			
			Brockton	(8)	13
			Framingham	(0)	5
			Hingham	(0)	18
			Hull	(3)	8
			Quincy	(4)	24
Whooping cough:			Wellesley	(0)	10
Total cases	359	509	Danvers	(0)	5
Case rate per 100,000 population	9.1	13.0	Stoneham	(0)	9
			Arlington	(1)	14
			Watertown	(2)	8
			Woburn	(0)	10
			Worcester	(0)	17
			Holyoke	(1)	7
			South Hadley	(0)	12
			Springfield	(10)	27
Tuberculosis, pulmonary:					
Total cases	614	588			
Case rate per 100,000 population	15.6	15.1			
Tuberculosis, other forms:					
Total cases	130	87			
Case rate per 100,000 population	3.3	2.2			

July, 1922.

General Prevalence.

There were 4,097 cases of communicable disease reported during July, 2,734 less than the total for the previous month. This decrease was noted in all of the more common communicable diseases, with the exception of whooping cough, and is the usual decrease for this season.

Anterior Poliomyelitis. — There were 23 cases of this disease reported during July. This shows the usual increase during the month of July, but does not equal the total of 26 cases obtained during July, 1921. The cases as reported are scattered throughout the eastern section of the State, the only city showing an unusual number of cases being New Bedford, with a total of 7.

Chicken pox was reported in 136 instances, a sharp drop from 325 cases reported during June.

Diphtheria shows a slight decrease from the 459 cases reported during June, the month's total being 381. This disease continues to be reported in slightly fewer numbers than last year.

Encephalitis lethargica was reported in 6 instances.

Epidemic cerebrospinal meningitis was reported but once during the month. While a falling off in the number of cases is usually noted during the summer months, this low figure has not been reached for several years.

Gonorrhea and *syphilis* were reported in 407 and 155 cases, respectively.

Malaria was reported in 8 instances, an increased number of reports to be received.

Measles continues to be reported in large numbers, 1,275 reports being received as compared with 866 for the same month of last year. This, however, is a decided decrease from the 3,198 cases reported during June.

Mumps is also showing a decrease in reports received, dropping from 375 cases in June to a total of 184 in July.

Scarlet fever was reported in 226 instances, about the average for this month.

There were 506 cases of *pulmonary tuberculosis* and 69 cases of *tuberculosis, other forms,* reported. This is a decrease from the previous month.

Typhoid fever increased from 41 cases in June to 74 in July. The only communities showing an unusual incidence were Worcester with 10 cases and Montague with 3 cases.

Whooping cough increased in the number of cases reported to 413. While an increase of 54 over the previous month is not unusual, it is conspicuous because this is the only one of the so-called common diseases which has increased rather than decreased during the month.

RARE DISEASES.

Anterior poliomyelitis was reported from Attleboro, 1; Boston, 2; Brookline, 1; Cambridge, 1; Clinton, 1; Fall River, 1; Haverhill, 1; Lawrence, 1; Medford, 1; Methuen, 1; New Bedford, 7; Revere, 1; Somerville, 2; Uxbridge, 1; Westfield, 1; total, 23.

Dog bite requiring antirabic treatment was reported from Barnstable, 2; Boston, 9; Cambridge, 1; Chelmsford, 3; Georgetown, 1; Holyoke, 1; Lowell, 15; Medford, 1; Plymouth, 1; Springfield, 1; Wellesley, 4; Weston, 1; Worcester, 1; total, 41.

Encephalitis lethargica was reported from Boston, 2; Cambridge, 1; Peabody, 1; Springfield, 1; Worcester, 1; total, 6.

Epidemic cerebrospinal meningitis was reported from Fall River, 1.

Hookworm was reported from Boston, 2.

Malaria was reported from Boston, 2; Fall River, 1; Haverhill, 1; Milford, 3; Northampton, 1; total, 8.

Pellagra was reported from Northampton, 1.

Septic sore throat was reported from Boston, 2; Fall River, 1; Leominster, 1; Norwood, 1; Springfield, 1; Whitman, 1; total, 7.

Tetanus was reported from Fall River, 1.

Trachoma was reported from Boston, 4; Fall River, 1; Fitchburg, 1; Lowell, 1; Somerville, 1; total, 8.

DISTRIBUTION.

All Communicable Diseases.

	July, 1922.	July, 1921.
Total cases (all causes)	4,097	3,989
Case rate per 100,000 population	104.1	102.2

Certain Prevalent Diseases.

	July, 1922.	July, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:					
Total cases	381	441			
Case rate per 100,000 population	9.7	11.3			
Measles:					
Total cases	1,275	866			
Case rate per 100,000 population	32.4	22.2			
			Fall River	(34)	43
			Provincetown	(0)	11
			Truro	(0)	20
			Boston	(269)	337
			Brookline	(9)	29
			Cambridge	(26)	63
			Dedham	(1)	10
			Norwood	(12)	45
			Beverly	(1)	31
			Chelsea	(8)	25
			Groveland	(0)	8
			Melrose	(8)	49
			Salem	(2)	27
			Wakefield	(7)	43
			Arlington	(6)	26
			Dudley	(0)	33
			Monson	(1)	34
			Northampton	(5)	42
			Springfield	(18)	46
Scarlet fever:					
Total cases	226	251			
Case rate per 100,000 population	5.7	6.4			
Typhoid fever:					
Total cases	74	62	Worcester	(3)	10
Case rate per 100,000 population	1.9	1.6	Montague	(0)	3
Whooping cough:					
Total cases	413	474			
Case rate per 100,000 population	10.5	12.1			
			Brockton	(13)	22
			Quincy	(5)	23
			Winthrop	(3)	13
			Medford	(1)	15
			Winchendon	(0)	7
			Worcester	(8)	28
			Holyoke	(0)	12
Tuberculosis, pulmonary:					
Total cases	506	479			
Case rate per 100,000 population	12.9	12.3			
Tuberculosis, other forms:					
Total cases	69	55			
Case rate per 100,000 population	1.8	1.4			

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MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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THE MATERNAL AND INFANT HYGIENE PROGRAM OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

By Merrill Champion, M.D., Director, Division of Hygiene.

MANY years ago Massachusetts recognized that there is a child hygiene problem. Bowditch in 1877 discussed the growth of children, and other studies followed. In 1894 the medical supervision of school children was begun in Boston. In 1906 this was incorporated into the statutes, for in that year medical school inspection, so called, was made obligatory. In 1921 school nursing service was made obligatory for the cities and towns of the Commonwealth.

The recognition of other phases of child hygiene has been more tardy, however, though the reasons are more or less obvious. School children represent the easiest group for the municipality to reach, both from an administrative and from an economic point of view. Hence it has come about that until recently comparatively little governmental effort has been directed on a State-wide basis toward reducing the death rate among infants and among women from causes connected with childbearing.

The Problem of Maternal and Infant Mortality.

How great a problem this is need not be recapitulated here. It should suffice to say that the early infant mortality shows very little if any reduction; the maternal mortality according to our best statistics is increasing. At any rate, we may say that, making allowance for every sort of error both of commission and omission which medical ingenuity may suggest as having been committed by the statisticians, we cannot by any effort of imagination blink the fact that the rate has not been decreasing the last decade or so. Why has it not decreased with the improvement in our medical schools, schools of nursing and hospitals?

Massachusetts has made various efforts to solve the problem of the risk attached to maternity and infancy. Several legislative committees have studied the matter and brought in recommendations which have been rejected by the Legislature as being too expensive, or undesirable from other points of view. The Federal Sheppard-Towner Act was also rejected by the Massachusetts Legislature on constitutional and other grounds. The State has finally fallen back upon the simplest plan proposed; time, it is believed, will show it to be also the most efficacious plan for a State with the administrative health problems that Massachusetts has.

NEW PLANS OF MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

The State Department of Public Health of Massachusetts has since 1869 been an advisory body. It has found its most fruitful field in encouraging and stimulating local health activity. The many types of health work now being carried on in our cities and towns, sometimes backed by municipal funds, more often by private funds, but seldom State subsidy, are the best evidence that this plan meets the needs of our citizens. The new plans for promoting maternal and infant hygiene through an additional State appropriation are entirely in accord with this policy, and are only an extension of work which has already been started or carried on at one time or another in the past.

Three methods of doing this sort of work stand out prominently; all three methods are sure; all three have been tried before. They fall into the following classes: *Informational; Public Health Nursing; Investigational.*

A. Informational.

This method is common, in whole or in part, to many States. In its simplest form it is represented by the use of pamphlets, posters, newspaper stories and lectures. Moving pictures are typical of the newer methods. Still more up-to-date is the use of the radio whereby unprecedentedly large audiences may be reached.

A more personal touch than is possible with the above-mentioned method is made possible by prenatal and postnatal letters. The State Department of Public Health has already employed this measure for years with encouraging success. These letters are intended merely as supplements to the physician's advice and not as a substitute for it. Among other things they urge early and continuous medical care for the prospective mother.

A breast-feeding campaign and efforts to improve birth registration also serve as invaluable aids in our fights on infant mortality. In fact, the studies of the commission authorized by the Legislature of 1920 showed conclusively that ignorance of hygiene is apparently the principal cause of maternal and infant mortality.

B. Public Health Nursing.

This is a method of attacking the maternal and infant hygiene problem which has recently gained a deserved recognition. In the municipality the nurse visits the homes and carries on her educational work by word of mouth and by example. This plan is not open to the State for many reasons. The State can, however, study conditions in the municipalities, and can encourage and stimulate new activities there. Such a study of local child hygiene conditions can be made by State nurses. After these studies have been carefully analyzed, the State department will then be in a position to offer advice to the various communities with regard to future activity. The State nurses then can assist in the interpretation of this advice through conferences with local nurses, groups of mothers and other interested bodies.

C. Investigational.

The most neglected, this method is in many ways the most important of all. Our knowledge of the causes of maternal and infant mortality is all too meager. Our information on this point can be extended only by painstaking and accurate field studies. The simplest way to accomplish this is through the use of physicians who will talk over each maternal death with attending physician, hospital and family. Many points are thus brought out which never could be obtained from a study of death certificates alone. In this way, also, the Department of Public Health can get the ideas of medical practitioners throughout the State, to the advantage of patient, physician and Department. The maternity hospital situation can also be studied at the same time.

In all this work for the promotion of maternal and infant hygiene, the Department of Public Health expects to have the assistance of a representative advisory committee made up of general practitioners of medicine, specialists, nurses and representatives of the fields of social work and journalism as well as of women's organizations and the general public.

SUMMARY.

The Massachusetts Program for the Promotion of Maternal and Infant Hygiene may be said to have for its objects: —

1. A general diffusion of knowledge concerning the hygiene of maternity and infancy.

2. Proper provision for the medical care of prospective mothers and of babies through the established channels of family physician, hospital, or, where advisable, clinics. This involves only encouragement of local facilities. It does not imply in any way State subsidies, State interference or State control.

The State program will follow these channels: —

1. Informational — including the use of literature, letters, moving pictures, lectures, newspaper material; conferences for mothers.

2. Public health nursing — including surveys of local child hygiene activities; advice as to their extension or improvement; conferences for nurses.

3. Investigational — including field studies of maternal and infant deaths; study of the maternity hospital situation.

The State Department of Public Health will have in this work the benefit of the advice of a distinguished, broad gauged and representative advisory committee recruited from outside the Department and from different parts of the State.

GOOD POSTURE AS THE BASIS OF HEALTH.[1]

By Joel E. Goldthwait, M.D., Boston, Mass.

In any consideration of health it is important to recognize that the way the body is used determines to a very considerable extent the general health of the individual.

An automobile or any other machine made by man, if used rightly, will perform the work for which it was designed without harm, but it must be used rightly, and for this reason the person who is to use it is carefully instructed in its operation. If the machine is strongly made it can be used imperfectly for a considerable period before it ceases to perform, but that it will cease to perform if used wrongly every one knows, and no one would approve of such use if the best interest of the machine is considered.

All Parts of Machine needed for Greatest Efficiency.

An automobile can get along on three cylinders very likely, but no one would think of claiming that this was as good as if all four or six were properly firing. A human body can get along for a considerable period with the parts out of adjustment. That this is to be desired no one would contend, nor can the greatest efficiency of the individual be developed under such conditions.

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[1] Broadcasted from Westinghouse Radio Station, Springfield, Mass., Nov. 22, 1922.

With the automobile the proper amount of gas, oil and electric spark is essential. Too little gas, the engine stalls; too much gas, it stalls. With the human body similar conditions exist. Too much of one secretion or too little of another, the machine struggles, the individual suffers. If the parts are not adjusted rightly, the "mixtures" are disturbed and something below best health results. To be at the best, or for the individual to be most healthy, the body should be used rightly.

Instruction required for Best Development of Body.

It is not expected that a person will use an automobile rightly the first time it is seen; instruction is considered necessary. The same thing should be expected with the use of the human machine. A child is expected to require instruction for the best development of the mind, and it is no more unreasonable to expect that instruction is needed for the best development of the body.

Far-reaching Effect of Erect Posture.

To use the body rightly should be the aim of all. It looks better to see a man or woman standing up straight, rather than slouched or drooped. It feels better; the person is more snappy — has more pep. The endurance is greater; there is stuff left in the individual even after a hard game or a stiff piece of work.

If the body is used rightly the head is held up, with the chin drawn in, and the blood flows to and from the brain easily. In this position the wits are most keen, the reactions are quick; it is the position of alertness.

In the erect position the chest is held up, the breathing is carried on easily, and the circulation is at its best. A person so standing has much better color than when the body is drooped.

In this erect position the ribs are drawn up so that the diaphragm is raised, the abdominal wall is drawn in, and the abdominal organs must be held in reasonable position. The stomach must work better, the liver must work better, the bowels must work better, all of the other organs must work better than if they are sagged, as they must be when the body is drooped.

The same thing is true of the feet and back. The chief cause of many of the cases of weak or flat feet or of weak or tired backs is the wrong use of the body. Learn to stand up straight with the proper balance of the body and most of this trouble will disappear.

The Formation of a Posture Habit.

Practice many times a day drawing yourself up to your full height. Feel tall. Draw in the chin, pull up the chest, draw in the waist so as to flatten the back, and feel the weight chiefly upon the front part of the feet. Make a practice of this with your families; it will help you, but it will be of the greatest benefit to your children. Have the whole family stand for one minute in this position before breakfast or after breakfast, or before supper or after supper, or any other time in the day, and it will surprise you to see how quickly such a posture becomes a habit.

In walking try to maintain the same position; swing along with the body held tall as if you owned the town, not as if you were ashamed of your town or of yourselves.

In sitting, keep the trunk of the body in the same position as when standing. Do not bend at the waist line; do the bending at the hips. Lean backward or forward as much as you choose, but do not buckle in the middle.

In lying down, lie flat; get rid of most of the pillows. Lie upon the back, or face, or side, as best suits you, but do not curl up and buckle in the middle. Give your organs a chance to work properly, especially at the time of rest. Sleep will be quieter and you will wake in the morning rested, with snap and pep enough to tackle the tasks of the day and make hard jobs seem easy.

The Best Way to use the Body.

Never forget that the best way to use the body for all purposes is as if it were stretched up as tall as possible, with head erect, chest drawn up, and with the waist or abdomen drawn in. Whether old or young, this should be learned, but since it is much easier to teach the child than the grown-ups, see that your children get this until you are proud of their good carriage. Their improvement will stimulate you to greater effort until this carriage becomes a habit, and once it has become instinctive to stand well poised, it will be hard to lose it. A strong, well-poised individual is better stock to be responsible for the next generation than the usual drooped type so commonly seen to-day. Stand up, sit up, stand tall, sit tall, throw a big chest, make your waist or abdomen flat, stand or walk forward on the feet. Be strong and healthy and get the spring and joy out of life which is hard to find when the body is weak and drooped.

FACTS AND FANCIES ABOUT HEART DISEASE.[1]

By Florence L. Meredith, M.D., Professor of Preventive Medicine, Woman's Medical College of Pennsylvania and Smith College Training School for Social Work.

HEART disease is responsible for about 12 per cent of the general death rate, and for perhaps a quarter of the deaths of those over forty years of age. Yet heart disease is not a matter of fate. People are rarely born with heart disease. It is not hereditary. Heart disease is due to some definite cause in each individual in which it appears.

Infection of the Heart by Germs.

This definite cause is most frequently of all an infection of the heart by germs. Almost any germ, almost anywhere in the body, may get to the heart and damage it. The part of the heart that is most frequently damaged is the valves, hence the term "valvular disease." The most important fact to know about heart disease is that it is most often caused by germs.

The second fact is that the germs that cause heart disease usually get into the body during childhood. There is twice as much heart disease among children of fourteen as among children of eight years of age. During the time between eight and fourteen these children have had germs at work somewhere in the body, and these germs have attacked the heart.

Tonsils and Teeth.

A good deal of heart disease comes from diseased tonsils. This sort of heart disease often begins rather suddenly in childhood, giving the child a severe illness during which he must be kept in bed a long time. If the care of the child is very good during such an illness the child may be restored to health. But sometimes the tonsils affect the heart very gradually, and no bad results are seen until after the poisoning has been going on for some time. Bad teeth may do damage to the heart in this same way. Teeth should be regularly inspected and cared for.

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[1] Broadcasted from Westinghouse Radio Station, Springfield, Mass., Aug. 23, 1922.

Children's Diseases.

Much heart disease comes from such illnesses as scarlet fever, measles, diphtheria, whooping cough and St. Vitus' dance. Other parts of the body besides the heart may suffer from these diseases. The joints are often the site of rheumatic pain that is due to the germs that get in at the tonsils and will possibly attack the heart too. The combination of sore throat and rheumatic pain should always receive immediate attention. If a child has any infectious disease the heart should be examined during and after them.

Prevention in Childhood.

A third point to bear in mind is that much heart disease may be prevented by keeping germs out of the body, or by promptly getting them out if they do get in. Children should be protected in every possible way from exposure to the diseases of other children or of grown people. If the child has colds and sore throats, running ears or bad teeth they should be attended to at once. Adults as well should protect themselves against getting other people's germs, by avoiding the spray from people who cough and sneeze and spit unguardedly. Germs are often given to children through kissing. The person who kisses a child on the mouth runs the risk of giving his own germs to the child. The mother who allows her child to be unnecessarily exposed to any kind of disease is endangering the child's whole future. The older the child is before he comes in contact with germs, the more likely he will be to resist them.

Care in Living adapted to Condition.

A fourth important fact about heart disease is that even those who have been unfortunate enough to get heart disease may often be prevented from suffering lifelong ill health from it, and they may even get along so well that they live to a good old age and die of something else. This means care in living. But not necessarily any different kind in living from that which any wise person would live. The first step for a person to take when he believes that he has heart disease is to make sure whether he has it or not. Often those who think they have it are really normal but weak individuals. The heart may be weak in just the same way that the other muscles are weak, for the heart is a muscle. The cure for this type of heart weakness is getting stronger all over, and getting into better general health by observing all the laws of health.

If an individual finds he really has heart disease, after a complete physical examination by a competent physician, he may be guided by his physician into ways of living and working that are adapted to his condition. By following advice most carefully he may be quite well all his life. With the aid of the physician he should find out how much work and exercise will help him and avoid that which would hurt him. Particularly will he avoid any new germs. For not only may infection be the original cause of heart disease, but it may also be the cause of increasing the heart trouble until the heart is too damaged to go on working.

THE VALUE OF REGULAR PHYSICAL EXAMINATION.

There are other causes of heart disease besides infection, but the individual who lives wisely and keeps in good health need not fear them. The modern point of view toward heart disease is that it is largely preventable by avoiding infection and by living wisely. Having an occasional physical examination and following the doctor's advice is the best way to be sure that one is living wisely.

It is possible to have a useful and happy life with heart disease if one lives within one's limits. But better still, it is possible to avoid heart disease.

DENTAL HEALTH WORK IN MASSACHUSETTS.[1]

By Evelyn C. Schmidt, Health Instructor in Mouth Hygiene, Massachusetts Department of Public Health.

HERBERT SPENCER once said in a prophetic moment, "To be a nation of 'good animals' is the first condition to national prosperity." Likewise, the prosperity of a State is measured by the health of its citizens.

It was, therefore, for the purpose of making health an asset in Massachusetts that a State Board of Health, the first in this country, was founded fifty-three years ago. Its aims are the eradication of preventable diseases and the maintenance of citizens in the best physical and mental condition. Dental health work logically comes under both of these headings, as dental caries is a preventable disease, the existence of which is detrimental to the health of the individual.

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[1] Read at the annual meeting of the American Dental Association at Los Angeles, Cal. Reprint from the "Journal of American Dental Association."

RECOGNITION OF PREVENTIVE DENTISTRY.

For years dentistry was an isolated, segregated profession. Gradually, however, the close relationship between the health of the oral cavity and the general health of the individual has been recognized by the dental and medical professions. But it is only recently that mouth hygiene, *en masse*, has begun to receive official attention as an integral part of public health protection, and to be co-ordinated with other forms of health work.

As public health work is branching out and its roots are becoming more firmly embedded in the solid foundation of prevention, specialists, obstetricians, pediatricians, nutrition workers, industrial physicians, dentists and educators are developing less exaggerated notions of the importance of their particular field, and are joining hands to help people along the highway to good health. The obstetrician is discussing the possible relationship of focal infection of the teeth to the toxemias of pregnancy. The dentist and nutrition worker are studying the effects of diet on the teeth. The educator is recognizing the part which mouth hygiene plays in the schoolroom and so on *ad finitum.*

THE PROBLEM OF DENTAL DECAY.

The staggering problem of dental decay with which the dentist has been confronted for generations is now a public health problem in which all health workers are interested.

Let us review the situation as it is seen from the State House: —

Geographically the State presents all types of communities, from the little town of Mount Washington, carefully snuggling its 73 inhabitants at the foot of the hills which make it a hard day's trip to the dentist, to Boston, harboring 750,000 heterogeneous souls, with 1,000 dentists at their beck and call. Still, in both places old people are chewing without teeth, school children crying because of their teeth, and the family toothbrush still hangs by the sink!

What must be done?

Of course, dentists must continue filling the teeth of those who seek their services, but for the multitude who do not — because they cannot, because they will not, or because they do not understand — something must be done. Is it a State problem? Should the State provide the treatment and educate the people?

ADVISORY CAPACITY OF STATE DEPARTMENT OF HEALTH.

The answer in our State is based on a policy that the citizens decided upon and have upheld for years, — that of local responsibility and control. Because this is the sentiment of the people, the State Department of Health serves the people merely in an advisory and educational capacity, while the community assumes the responsibility of providing treatment, when it is necessary, either under official or unofficial auspices. In 1920 a statute was passed empowering cities and towns to establish dental, medical and health centers, and to conduct educational campaigns in connection therewith under the auspices of their boards of health.

THE DENTAL CLINIC.

As communities begin to realize the magnitude of the mouth hygiene problem in their midst, the initial step which they take to counteract this is that which is most spectacular and comprehensible, — the reparative dental clinic.

The first dental clinic in Massachusetts for people with limited incomes was established in 1867 coincident with the Harvard Dental School. In 1874 the first dispensary dental clinic was opened. Dental service in the beginning was primarily for adults, but in 1908 a step toward preventive dentistry was taken, for it was then that the first school dental clinic was founded, a clinic primarily for children.

During the fourteen ensuing years dental service for school children has increased to the extent that now 138 of the 355 cities and towns, or about 38 per cent of the communities in the State, have some form of service; 93 of these communities have their own equipment, meager in many instances, but always a source of civic pride, and, after all, is it not the mental attitude which prevails within a clinic rather than the equipment which makes for success? Of course, every one recognizes that an ideally equipped clinic is a psychological asset, but it is sometimes an unwarranted extravagance. Sixty-one per cent of these clinics are under official auspices; 39 per cent under unofficial. Some of the clinics operate one day a week, some every school day, the dental clinicians receiving salaries varying from 80 cents to $4 an hour, the average being $1.65. Perhaps it is fitting to mention here that it is hoped that a scale of salaries based on preparation and experience may be worked out by such a body as the American Dental Association. Suggestions as to personal qualification might be *à propos,* for because a dentist is a dentist he is not necessarily fitted for school work. The dental schools might help to improve this condition by giving special training for this type of service. It is men with patience, vision and understanding that we need.

THE LOCAL PROGRAM.

As I said, the State has no mandatory power over the establishment and maintenance of clinics. We act as a clearing house, where citizens may come to find what other communities are doing — to get suggestions about the equipping and operating of clinics. We also try to interest and stimulate communities to realize the importance of dental health work. Believing that a "dental awakening" is essential in every town, we have outlined a program and prepared material for this, — an exhibit, literature, slides, motion pictures and lectures.

There are several important, fundamental points which we urge a community about to establish dental service to heed: to seek the co-operation of all official and unofficial agencies and of all local dentists; to think of a school dental clinic not as a thing *per se* but as part of the health equipment of a school, its aims and policies to be understood by those who touch the health of the school child (it is advised to operate the clinic on the basic idea of prevention, and hence to confine the work to a definite field in the lower grades, making general prophylaxis and hygienic instruction the primary, and curative work the secondary, consideration); to determine, in fairness to the local dentist, that the patient is worthy of service, if it is a philanthropic clinic; to see that the clinic is open to all school children if it is supported by municipal funds. These are a few of the suggestions which we make.

FINANCING OF CLINICAL SERVICE.

But to return to clinical service. Besides the 93 communities having permanent clinics, 14 either appropriate funds for work for needy children to be done by a local dentist, or are reached through a health center. Thirty-one additional rural towns have the services of a traveling clinic, four of which are operating in the State under unofficial auspices, — the county farm bureau in three instances and the American Red Cross in the fourth. These clinics are in no way charity clinics. Instead, they answer the question of inaccessibility to dentists, for the policy is to operate preferably in towns where there is no local dentist. They are consequently self-supporting, charging from $2.50 to $3 an hour. They work entirely for children although emergency work is done for any one.

Massachusetts now has 12 communities in which dental hygienists are employed for school work. In one instance a private individual supports the work; in the other nine cases, the local board of health. The dental hygienist is gradually finding her place in the broad field of public health work.

Education the Key-word to Prevention.

Admirable as the increase in school dental service may be, are we reaching the core of preventive dentistry? Our children may leave school with healthier mouths, but are our children coming into school with fewer cavities to be filled by the school dentist? Unfortunately, no. To overcome this we must increase the dental facilities for the pre-school child, and redouble our attention on the mother during the pre-natal period.

But the key-word to "prevention" is "education." Even now civilized man is fettered by mythical adages which have been handed down from generation to generation. Superstition, prejudice, ignorance must be counteracted, — counteracted by education.

Mother must understand that Johnnie does not inherit "soft" teeth from his father, but that the predisposing causes of dental infection may be traced to improper diet during pregnancy and infancy. Mothers must know that children do not need to have the so-called children's diseases, and that the development of the teeth is seriously interfered with by all diseases affecting the epithelial structure. Parents should learn that the "little taste" of sweet, given with the best intentions, leads to the cultivation of the mythical "sweet tooth" which is injurious to all of the teeth. People must be aroused to the realization of the importance of the first teeth, of the sixth-year molars — of all the cardinal points in dental health.

Dentists alone can never reach all the people with the truth about preventive dentistry. They can, however, teach others who in turn come in contact with the laity from different angles. Because of my aspiration for the ideal and my confidence in the future of preventive dentistry, I venture to suggest that there should be more emphasis laid on the subject in normal schools for teachers, in training schools for nurses, in training courses for public health nurses, in medical schools, and, I am forced to add, in the dental schools also.

Importance of Constructive Teaching.

Our educational work, as I previously said, is carried on through motion pictures, lectures, slides, charts, mottoes, posters, exhibits and literature, all of which may be obtained gratuitously by any citizen of the State. In all of our teaching we try to emphasize the positive rather than the negative. "Decayed teeth" is not a euphonious phrase. Therefore we try to construct healthy mouths with diet (delicious fruits, tasty vegetables, palatable eggs, natural grains), with mastication, refreshing brushing, and frequent visits to the dentist, — all factors over which every individual has control. And these mouth hygiene hints appear in our pre-natal and post-natal letters, in our literature on infant and child care, on diet, and, of course, in all literature on mouth hygiene.

Through joint conferences of the Department of Education and the Department of Public Health, which have brought together workers in both fields, — teachers, school nurses, school physicians, nutrition workers and hygienists, — methods for emphasizing the importance of mouth hygiene have been discussed. This year we hope to reach these groups again, as well as to give lectures on oral hygiene in the normal schools, thus acting as a link between the dentist and the school teacher.

Steps toward building a Healthy Nation.

And all the time we are looking for guidance. No matter how many people may be teaching in a simple manner the truth about a clean mouth, — in the classroom, in clinics, before club women, in industrial plants, everywhere, — all are looking to the dentist to tell definitely why teeth decay, how important vitamines are, and if candy really is bad for the teeth.

You know the questions. Dentists must answer them if they are to do their share toward building up a prosperous, healthy nation.

Wise men have taught us to cure evil at its source. Prevention with children is better than cure with adults, and so it is for the child that I appeal. Every child has a right to be as healthy as present-day knowledge can make him, but every child does not have a chance. Help him to have it. Help to build up the health of our children. It is a national problem, a State problem, your problem and mine.

A NEW METHOD OF PURIFYING WATER.

By H. W. Clark, Chief Chemist, Massachusetts Department of Public Health.

PROBABLY the chief objection to slow sand filtration in the minds of many sanitary engineers and water works officials is that this method of water treatment seldom removes from the comparatively clear but often highly colored waters of the eastern States more than from 25 to 30 per cent of the color, and hence does not produce a filtrate as clear, sparkling, low colored and altogether attractive as the filtrate from coagulation and rapid filtration of such waters. On the other hand, perhaps the chief objections to the method of coagulation and rapid filtration when applied to these soft, highly colored waters are: (1) the tendency of this method to increase the corrosive properties of the soft water treated; (2) the difficulty of obtaining good bacterial results generally speaking, as compared with slow sand filtration, especially if these soft waters are badly polluted; (3) the fact now again being widely commented upon that occasionally aluminum sulphate does pass through such filters.

Owing to these objections or criticisms of the two methods, a process of water treatment that will produce a sparkling water of low color, without materially increasing its corrosive properties, is much desired, and such a method I believe we have worked out at the Lawrence Experiment Station of the Massachusetts Department of Public Health. I am calling this a new method, although we have been experimenting with it since the latter part of 1916, and have published in our reports short summaries of the results obtained.

Principle of the Process.

Briefly, the process consists of loading the sand of a slow sand filter with the ordinary coagulants used in mechanical filtration, but operating the filter generally at slightly more than the usual sand filter rates, or about 5,000,000 or 6,000,000 gallons per acre daily. Filters loaded in this way remove a very large percentage of the organic matter, especially the coloring matter of the applied water, and produce a clear, sparkling, and altogether attractive effluent containing no more carbonic acid than the raw water applied to the filters and with the carbonate constitutents of the water slightly increased.

ADVANTAGES.

This method of water treatment has many advantages over each of the other methods and but one drawback. The advantages are as follows: (1) The corrosive properties of the effluent are not increased, or, if so, not materially, and neither aluminum sulphate nor alumina is found in the filter effluent. (2) The aluminum hydroxide with which the filter is first loaded is regenerated whenever its color removal properties begin to fail, and hence is used over and over again; therefore the primary cost of coagulants is practically the final cost. (3) When receiving comparatively highly colored water from storage reservoirs practically free from mineral matter in suspension, such as silt, etc., the method of filter regeneration or removal of stored color which we employ removes practically all organic matter from the surface of the filter as well as from its deeper portions, and hence the necessity for scraping the filter is largely obviated; therefore the expense of sand removal and sand washing is reduced to a minimum. Filters of this type now in operation at the Experiment Station have been scraped only once or twice during a period of five years' operation at rates of 5,000,000 gallons per acre daily. (4) There is, as I have already stated, practically no consumption of alum. Filters operated now for five years have theoretically used up to date, taking into consideration the amount of aluminum sulphate primarily placed in the filter and the volume of water filtered, about .2 of a grain of sulphate per gallon of water filtered, or practically one-twelfth of the amount necessary per gallon in successful mechanical filtration of the Merrimack River water such as applied to these loaded filters. As the loaded filter increases in age and the volume of water filtered and decolorized increases, the theoretical or apparent use of alum grows less and less per gallon. Successful mechanical filtration of Merrimack River water costs in the neighborhood of $6 or $7 per million gallons for aluminum sulphate, while with this new method the cost to date has been about

55 cents per million gallons for this sulphate, and this cost is constantly growing less; that is to say, if in the next five years we filter as large a volume of water as in the past five and without additional loading of the filter, the cost will be 28 cents per million gallons.

The Test of Time.

Up to date we have operated eleven filters loaded with aluminum sulphate, but for purposes of this paper the results of only five or six need be given. One filter, put into operation in January, 1917, and constructed of 4½ feet in depth of sand with an effective size of .25 millimeter, was loaded with 80 tons of aluminum sulphate per acre of filter surface. The aluminum hydroxide was precipitated in the sand by flooding the filter alternately with small doses of solutions of soda ash and sulphate, although the filter can be loaded by mixing an alkali such as magnesium carbonate with the dry sand and then applying solutions of the sulphate. During its five years of operation the average color of the effluent from this filter has been 14, and the color of the water applied to it, 41, — a removal of 66 per cent. During long periods the color of the effluent has averaged 7, however, and during portions of these periods the applied water has had a color of 60, 70 and even 75; that is, the filter has given an average color removal during such periods of about 90 per cent. In other words, the color line of the effluent has always been nearly straight, while the color of the applied water has had many high peaks, and the higher the color of the applied water the greater the percentage of the coloring matter removed.

Up to date this filter has removed rather more than 50 per cent of the organic matter determined as albuminoid ammonia and 60 per cent of that determined as oxygen consumed. It has been treated with week solutions of caustic soda twenty-four times in five years in order to remove the coloring matter held in the filter by the aluminum hydroxide. After this treatment with caustic such a filter is washed with a volume of water equal to about 2.5 to 3 per cent of that filtered between treatments, and is then ready for service for a period of two or more months. It is not necessary to use filtered water for this washing out of caustic. The amount of caustic used up to date in the filter described has been .5 of a grain per gallon of water filtered, which makes the expense for the caustic used about $2.50 per million gallons of filtrate. We believe, however, judging from later results, that we have used in this particular filter an excessive amount of caustic, and that this figure may be much reduced.

A filter loaded with 150 tons of aluminum sulphate per acre has given an average color removal of 78 per cent during the past two years when operated at a 5,000,000-gallon rate, and a filter constructed of sand as fine as .11 millimeter effective size and operated at a 2,500,000-gallon rate has produced an absolutely colorless effluent since first put into operation. The cost of efficiently loading an acre filter is a small percentage of the cost of filter construction.

BACTERIAL RESULTS.

The bacterial results from this method are poor, as the caustic used removes from the sand grains much of the gelatinous organic matter so necessary for the retention of bacteria, but the effluent — clear, low in color and sparkling — is easily rendered practically sterile by the use of small amounts of chlorine, and chlorine is in almost universal use at filter plants at the present time in order that their effluents may be absolutely safe.

APPLICATION TO STORED WATERS OF HIGH COLOR.

This method of treatment is particularly applicable to stored waters of a high color, the improvement of which physically is of more moment than the reduction of bacteria, and it has seemed to us that there is no serious objection to it which would prevent its use upon a large scale. Recent experience has shown that perhaps the better way of loading the sand would be to carry this loading process on in comparatively small tanks or bins and then transport the sand to the filter. By this method more even distribution of the hydroxide would be obtained and stratification prevented.

The following table illustrates some of the results obtained at the Experiment Station during the past five years: —

	Filter Number.					
	494.	512.	513.	514.	515.	516.
Tons of aluminum sulphate per acre precipitated in filter.	80	75	75	150	150	225
Color removed (per cent)	66	73	73	73	78	76
Number of days between caustic treatments .	65	67	67	89	89	90
Grains of caustic soda used per gallon of water filtered.	.52	.21	.42	.16	.32	.16
Approximate percentage of wash water . .	2.5	3.7	3.7	2.8	2.8	5.5

Rate of each filter, 5,000,000 gallons per acre daily.

THE "HOOCH" QUESTION

As viewed from the Liquor Samples submitted to the Massachusetts Department of Public Health by the Police Departments of Cities and Towns.[1]

By Hermann C. Lythgoe, Director, Division of Food and Drugs.

THE term "hooch" as now employed has not yet been included in the dictionaries of the English language, but the difference between "hooch" and real liquor is merely a matter of temperament. Formerly the producer of liquor was either an artist or a patient man. The production of a satisfactory "blend" is the work of an artist. The production of a satisfactory "straight" liquor results from the careful selection of materials, careful control of the fermentation and distillation, and four years of time to acquire the necessary age. The "hooch" manufacturer is usually an inartistic, impatient bungler, yet if his products be kept in a charred oak barrel for three or four years the results will be a liquor of reasonably good quality, although it will not be so good as if more care were taken in the process of manufacture.

Interpretation of the Eighteenth Amendment.

It was to be expected that the Eighteenth Amendment to the Constitution would be followed by an increase in violations of the law, because all liquor selling became illegal, and only by illegal means could the thirsty ones be appeased, unless they had the necessary funds and the forethought to stock up. I was greatly surprised, however, at the speed with which the police departments of this State grasped the problem, and am still more surprised at the rate at which they are keeping it up.

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[1] Presented before the Massachusetts Medico-Legal Society on Tuesday, June 13, 1922, in Boston, at a Symposium on "Acute Alcohol Poisoning."

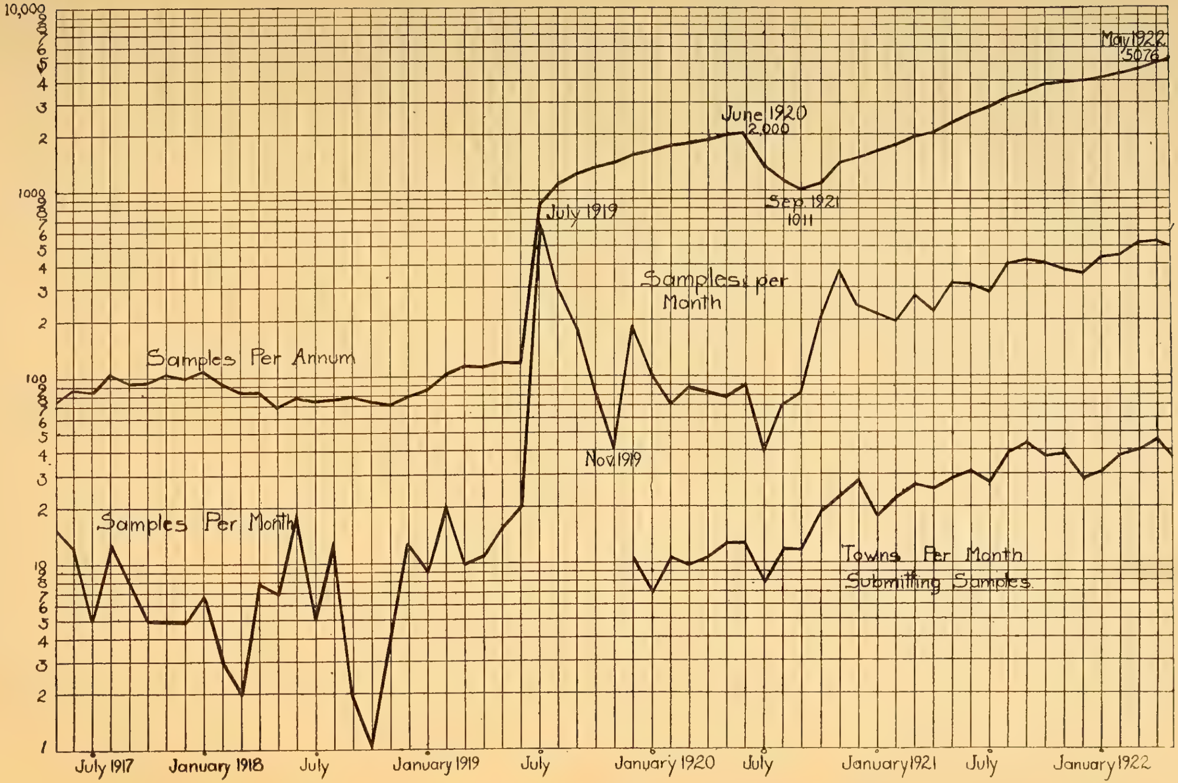
When war prohibition went into effect, July 1, 1919, Massachusetts was operating under the usual liquor law, under which licenses could be granted for the sale of intoxicating liquors, providing the citizens had so voted. Many license boards had granted licenses to sell beer and light wines, but specified that the license conferred upon the holder no immunity against prosecution in the United States courts. After the Eighteenth Amendment became effective, January 1, 1920, no liquor licenses of any sort could be granted in this State.

Examination of Samples for Police Departments.

The law requires the Massachusetts Department of Public Health to examine liquor samples for police departments, and in July, 1919, such samples had increased from the previous rate of 60 or 90 per annum to 688 in that one month. This was due to the requests made by the United States Internal Revenue Department of certain police departments, namely, that they collect beer from establishments under Massachusetts licenses, obtain the analysis, and send the results of the analysis to that Department for use in the Federal courts. In 1920 a change was secured in the law, giving the Department of Public Health the right to refuse to make any analysis of a sample of liquor unless the results were intended for use in the State courts. This liquor analytical work was begun by the State Board of Health, the direct predecessor of this Department, in 1902, and from that time until June 30, 1919, about 2,000 samples were examined. In the fiscal year ending Nov. 30, 1919, the Department examined 1,411 samples of which, I estimate, only 376 samples were intended for use in the Massachusetts courts. In 1920 there were examined 1,429 such samples; in 1921 there were examined 3,831 such samples; in the twelve months ending May 31, 1922, there were 5,076 such samples examined; during the past six months there were 2,799 such samples, and my estimate for the present fiscal year is approximately 5,900 samples.

Increase in Number of Samples.

In 1920 about 10 towns per month submitted samples. This number has been increasing at about the same rate as the samples, and is now about 45 per month. Fortunately, we know that there is a top limit to this figure; it cannot exceed 355 until the Legislature has increased the number of towns. But the top limit of the samples



Samples of liquor examined July, 1917–January, 1922.

is unknown, and depends upon three factors, — first, the number of violations; second, the efficiency of the police departments; and third, the number of samples submitted from each raid. This increase in sample numbers is not arithmetic, but at present is geometric, and the figures for the past five years are shown on the chart on the semi-logarithmic scale. The upper plot on this chart, varying from 80 to 5,076, represents the total samples per annum ending in the month plotted. The middle plot, beginning at 16 and ending at 495, represents the number of samples examined per month. The lower plot, on only the right half of the chart, represents the number of towns per month submitting samples.

CHARACTER OF SAMPLES.

The character, as well as the number of samples, has varied extensively. In 1919 most of the samples were beers, with a few samples of distilled liquor and Jamaica ginger extract. In 1920 the beer samples were but few; the distilled liquors, cider, wines and ginger extracts showed considerable increase. In 1921 the distilled liquors increased and the extracts decreased, and in 1922, so far, the tendencies have been in similar directions.

The following table gives the percentage classification of samples submitted in 1920, 1921 and the first six months of 1922 (December to May): —

	1920.	1921.	1922.
Beer	77.3	9.4	6.7
Wine	3.0	3.7	1.4
Cider	2.9	6.7	5.6
Distilled liquors	3.0	61.4	76.2
Flavoring extracts	8.5	5.3	1.1
Alcohol	1.5	5.8	4.1
Miscellaneous	3.8	7.7	4.9
Totals	100.0	100.0	100.0

The "miscellaneous" classification occasionally excites comment on the grounds, "Why a 'miscellaneous' column when there is such a satisfactory list from which to choose?" These miscellaneous samples, necessary as evidence in the trial of liquor cases, consist of such articles as exhausted malt, mash, coloring matter, malt extract, non-alcoholic imitations of liquors, alcoholic and non-alcoholic proprietaries, sink drainage (mostly alcoholic), a sample of boiled dinner in which, during a raid, a full bottle of whiskey was thrown, resulting in an explosion and a conviction; and in one instance a sample of alcoholic sand obtained in a raid, also resulting in a conviction.

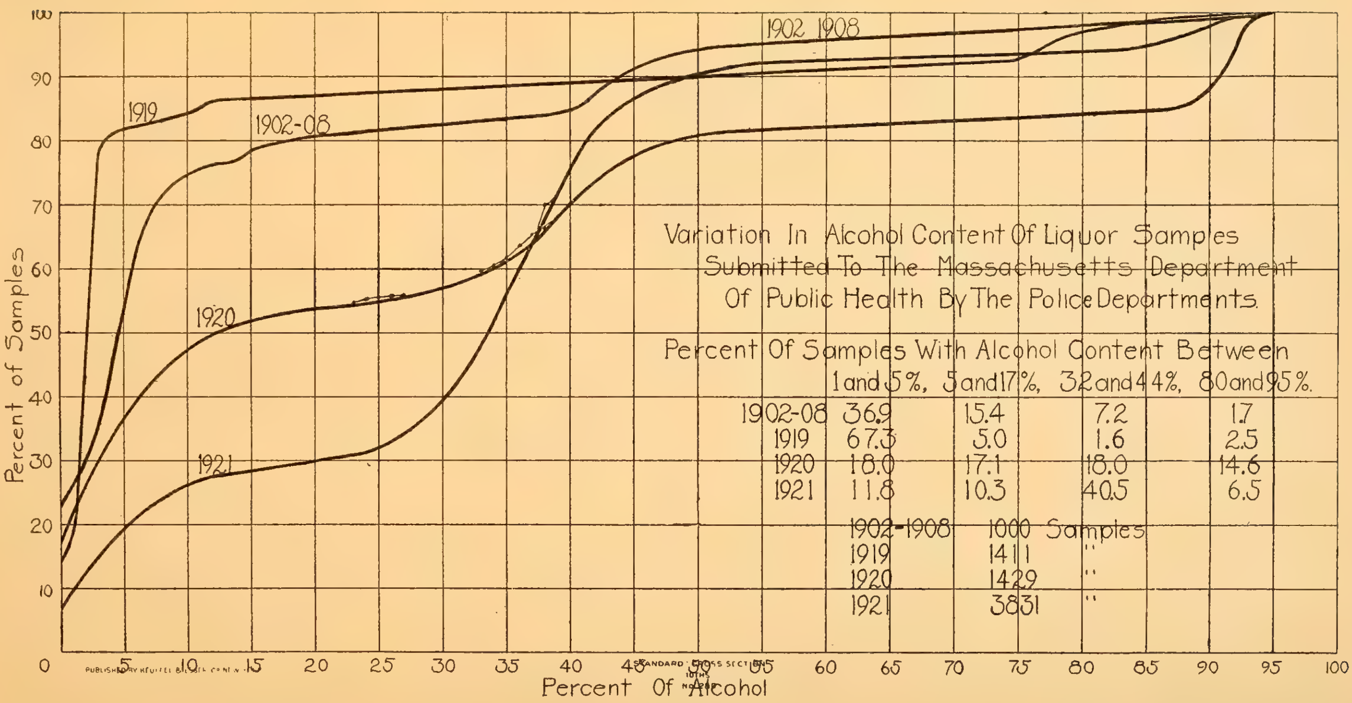
Variation of Alcohol Content.

The variation of the alcohol content of the first 1,000 samples and of all the samples received in the past three years is shown in the chart. These curves are summation curves, each point representing the per cent of samples with an alcoholic content at and below that plotted. None of these samples, except a few samples of denatured alcohol, were found to contain any methyl alcohol. A few samples said to have caused sickness were examined for toxic substances other than alcohol with negative results.

One sample, said to have caused death, deserves special comment. An alleged chemist made some liquor of which a number of persons partook, were made sick, and from which one death resulted. The so-called chemist was locked up on a charge of manslaughter, and the liquor was submitted to the Department for analysis. So far as we were able to ascertain, the liquor, which was of the "hooch" variety, was free from any toxic substances except alcohol and the usual by-products of fermentation. The sample was then submitted to Dr. Reid Hunt, who gave an 85 per cent fatal dose, based upon the alcohol content, to a guinea pig and to a rat. Both animals recovered, and Dr. Hunt reported that the sample was no more toxic than the ethyl alcohol of the same concentration.

Toxicity of Distilled Liquors.

The distilled liquors submitted by police are practically all unaged liquors, deriving the alcohol from starch, and in consequence contain more or less fusel oil, aldehydes and volatile acids. During the ageing of such liquors these by-products form different compounds with each other, more agreeable in flavor, but in all probability about as toxic as the original materials from which they were created. The amount of these substances in the liquor is so small that the total toxicity would be affected to only a slight extent, and we must assume that the harmful results of such liquor are due chiefly to the alcohol. Of the 3,831 samples examined in 1921, one-


Variation In Alcohol Content Of Liquor Samples
Submitted To The Massachusetts Department
Of Public Health By The Police Departments.
Percent Of Samples With Alcohol Content Between
1 and 5%, 5 and 17%, 32 and 44%, 80 and 95%.
1902-08 36.9 15.4 7.2 1.7
1919 67.3 5.0 1.6 2.5
1920 18.0 17.1 18.0 14.6
1921 11.8 10.3 40.5 6.5
1902-1908 1000 Samples
1919 1411 "
1920 1429 "
1921 3831 "
1902 1908
1919
1902-08
1920
1921
Percent of Samples
100
90
80
70
60
50
40
30
20
10
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
Percent Of Alcohol
PUBLISHED BY KEUFFEL & ESSER CO. N.Y.
STANDARD CROSS SECTION 10THS

half varied from 30 to 49 per cent alcohol, forming a probability series; that is to say, the alcohol percentages occur according to the laws of chance. The median or middle point of this series is 37.3 per cent, not particularly high for whiskey which usually runs from 44 to 50 per cent alcohol. Half of these samples varied in alcohol from 34.1 to 40.5 per cent.

In considering these figures it should be understood that the samples are obtained by police authorities, and therefore a liquor nuisance exists in connection with practically all the samples. Considerable illegal liquor traffic exists without there being any liquor nuisance, and but little of this traffic comes to the attention of the police. The consumption of "hooch," therefore, must be so great that accurate or even approximate statistics are not obtainable. The only deduction that can be drawn from these facts is that the untoward effects of the ordinary market variety of "hooch" is due to the quantity consumed by the victim. The deaths, however, from the ingestion of alcoholic liquors would be immensely greater were they due to the objectionable by-products of fermentation present in these liquor samples.

Of course, history is liable to repeat itself, and we may have a repetition of the holiday celebration in the Connecticut valley a few years ago, when so many people were killed by wood alcohol.

It is assumed by many persons that one of the duties of the Commonwealth is to make free analysis, regardless of expense, to satisfy the curiosity of its citizens. Numerous requests are received to examine liquor to see if it is all right for beverage purposes; but when the name and address of the person from whom the liquor was purchased is desired in order to prosecute if the sample is adulterated, the citizen loses his desire for a free analysis and thinks he will go to a consulting chemist. When informed that the price for making such analysis by a commercial man would probably vary from $15 to $25 according to the work desired, the citizen sometimes thinks he will not consult a chemist, but will either destroy the liquor or take a chance.

In spite of signs to the contrary, however, prohibition is here to stay. It is inconceivable that two-thirds of the States will swing from a dry to a wet condition, and it is evident that we are now, and always will be, at least a little more than one-third dry, or sufficiently so to prevent any change in the Constitution by the usual methods.

THE COMMONHEALTH.

BIMONTHLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
Room 546, State House, Boston, Mass.

Cancer Week. — Cancer is to-day the leading cause of deaths among adults, but it is now well recognized that its enormous mortality is largely due to unnecessary delay in its recognition, and more especially to failure in bringing the disease to treatment during the so-called pre-cancerous stage. The statistics and facts which reach the American Society for the Control of Cancer show that this delay is not wholly due to ignorance of the prodromal symptoms among the laity, but that there are still too many physicians who are not sufficiently impressed with the urgent need of prompt action in suspicious cases and with the disastrous effect of delay in diagnosis.

THE REWARD OF COURAGE

A NON-TECHNICAL FILM

PRESENTED IN A
PLEASING
WAY

HELP TO STAMP OUT CANCER

Suitable for groups of people meeting for educational purposes
Available FREE from Massachusetts Department of Public Health

The control of the disease depends upon the continuance of a widespread campaign of education, both among the laity and among those physicians whose interest has not yet been awakened to the latest developments in its management. The national "Cancer Week" which was instituted last year proved a great success in awakening interest. The great advantage of these national "weeks" in awakening interest is that during those seven days everything pertaining to the disease becomes "news" which the public press is glad to receive and publish as it will not at other times.

Cancer Week was held this year during the week of November 12 to 18. During this week public meetings and medical meetings devoted specially to cancer were held all over the country. Radio broadcasts and moving pictures were used freely, and the press gave its support. In Boston and in other centers in Massachusetts there were daily clinics in which modern methods of diagnosis and treatment were discussed and exhibited to the profession, and lectures were given at each of the Boston medical schools.

Advisory Committee for Maternal and Infant Hygiene Work. — The Department of Public Health takes pleasure in announcing that it will have in its maternal and infant hygiene work the benefit of the advice of the following advisory committee: —

Miss Mary Beard.
Dr. Edward F. Cody.
Dr. Robert L. DeNormandie.
Mr. Robert W. Kelso.
Mrs. Helen A. MacDonald.
Miss Gertrude Peabody.
Mrs. Arthur G. Rotch.
Dr. Richard M. Smith.
Dr. Halbert G. Stetson.
Dr. Fritz Talbot.
Mr. Edward E. Whiting.

Of this group, Dr. Cody and Dr. Stetson are intended to represent the medical profession in general; Dr. Smith and Dr. Talbot, the pediatricians; Dr. DeNormandie, the obstetricians; Miss Beard and Miss Peabody, the nursing profession; Mr. Kelso, the profession of social work; Mr. Whiting, the journalists; Mrs. MacDonald, the mothers; and Mrs. Rotch, an interested branch of the women's organizations.

Such a group ought to be able to give the Department most valuable and unbiased advice in its maternal and infant hygiene problems.

Nutrition Activities in Massachusetts. — A study made by the State Department of Public Health shows a rapid development of nutrition activities in Massachusetts during the past two years. The cities and towns with home economics classes in their schools have increased from 130 in 1920 to 251 in 1922; the extension classes in nutrition, from 31 to 47; 202 cities and towns have reported hot school lunches as against 167 two years ago. The underweight children are being taken care of in 45 cities and towns by special nutrition classes, which have been almost tripled within two years. Thirteen cities and towns have added special workers to their nutrition force.

When we consider that 20 per cent or more of our children are suffering from malnutrition, the importance of immediate measures for building healthy bodies is manifest. The hot school lunch is necessary where commuting at noon is impossible; the mid-morning lunch of milk is desirable not only for the undernourished child, but also, in most cases, for the well child. The nutrition clinic fills a need for the children who are below par. But we must not forget the home economics class. Its value, though not perhaps immediate, is far-reaching, as it lays the foundation for better food, better health, better homes.

The Parent Teacher Association and Child Hygiene. — "The health of the child is the power of the nation" was the slogan of Children's Year; and a realization of this truth has led to increased effort for child welfare. Perhaps it is most gratifying to concentrate health work upon the child because this work can be organized in the schools. One fact we must realize, however: the child's day does not begin at 9 o'clock in the morning and end at 3.30 when school lets out. His day is twenty-four hours long, just as a grown-up's day. Therefore it is vitally important that the forming of habits and directing of instincts be a partnership affair, receiving co-operation of both parent and teacher.

The Parent-Teacher Associations represent the interests of the child at home and in school. At a recent Convention of the Massachusetts Association purposes and plans, which need only the backing of enlarged organization, were outlined. The program included various phases of health. A Round Table was conducted to discuss "What a Parent-Teacher Association can do for Child Hygiene."

It was decided that the most valuable service is to create wholesome public opinion. The first example of this to come to mind might be the enforcement of laws. Towns are required to have a school nurse, yet not all towns do. A thorough annual medical examination of every school child is required by law. The association should see that the school doctor is getting adequate salary, so that this examination is really thorough, not merely theoretical. The training of the nurse and the number of children in her charge are also matters which should be of interest to an enlightened public.

Another function of the Parent-Teacher Association is to show a keen interest in all health propositions — to talk them over and to advise action concerning them.

The Convention program included an address on mental hygiene by Dr. C. Macfie Campbell, President of the Massachusetts Society for Mental Hygiene, and a talk and demonstration on physical education by Miss Louise S. French, Assistant Supervisor of Physical Education in the Department of Education. The Pageant of Progress, admirably presented by the citizens of Gloucester, showed the results of twenty-five years of work carried on by the Parent-Teacher Associations to improve the school child mentally, physically and morally. — F. K.

REVIEW OF REPORT ON NURSING EDUCATION.

IN January, 1917, a committee was appointed by the Rockefeller Foundation, with Dr. Winslow of Yale as chairman, to study "the proper training of public health nurses." A year later the scope was broadened to include "a study of general nursing education, with a view to developing a program for further study and for recommendation of further procedure."

The reader can probably grasp more readily a general purport of the report if we quote verbatim the ten conclusions reached by the committee: —

Conclusion 1. — That, since constructive health work and health teaching in families is best done by persons: (*a*) capable of giving general health instruction, as distinguished from instruction in any one specialty; and (*b*) capable of rendering bedside care at need, the agent responsible for such constructive health work and health teaching in families should have completed the nurses' training. There will, of course, be need for the employment, in addition to the public health nurse, of other types of experts such as nutrition workers, social workers, occupational therapists, and the like.

That as soon as may be practicable all agencies, public or private, employing public health nurses, should require as a prerequisite for employment the basic hospital training, followed by a postgraduate course, including both class work and field work, in public health nursing.

Conclusion 2. — That the career open to young women of high capacity, in public health nursing or in hospital supervision and nursing education, is one of the most attractive fields now open, in its promise of professional success and of rewarding public service; and that every effort should be made to attract such women into this field.

Conclusion 3. — That for the care of persons suffering from serious and acute disease the safety of the patient and the responsibility of the medical and nursing professions demand the maintenance of the standards of educational attainment now generally accepted by the best sentiment of both professions and embodied in the legislation of the more progressive states; and that any atempt to lower these standards would be fraught with real danger to the public.

Conclusion 4. — That steps should be taken through State legislation for the definition and licensure of a subsidiary grade of nursing service, the subsidiary type of worker to serve under practicing physicians in the care of mild and chronic illness, and convalescence, and possibly to assist under the direction of the trained nurse in certain phases of hospital and visiting nursing.

Conclusion 5. — That, while training schools for nurses have made remarkable progress, and while the best schools of to-day in many respects reach a high level of educational attainment, the average hospital training school is not organized on such a basis as to conform to the standards accepted in other educational fields; that the instruction in such schools is frequently casual and uncorrelated; that the educational needs and the health and strength of students are frequently sacrificed to practical hospital exigencies; that such shortcomings are primarily due to the lack of independent endowments for nursing education; that existing educational facilities are, on the whole, in the majority of schools inadequate for the preparation of the high grade of nurses required for the care of serious illness, and for service in the fields of public health nursing and nursing education; and that one of the chief reasons for the lack of sufficient recruits, of a high type, to meet such needs lies precisely in the fact that the average hospital training school does not offer a sufficiently attractive avenue of entrance to this field.

Conclusion 6. — That, with the necessary financial support and under a separate board of training school committee, organized primarily for educational purposes, it is possible, with completion of a high school course or its equivalent as a prerequisite, to reduce the fundamental period of hospital training to twenty-eight months, and at the same time, by eliminating unessential, non-educational routine, and adopting the principles laid down in Miss Goldmark's report, to organize the course along intensive and co-ordinated lines with such modifications as may be necessary for practical application; and that courses of this standard would be reasonably certain to attract students of high quality in increasing numbers.

Conclusion 7. — That superintendents, supervisors, instructors, and public health nurses should in all cases receive special additional training beyond the basic nursing course.

Conclusion 8. — That the development and strengthening of university schools of nursing of a high grade for the training of leaders is of fundamental importance in the furtherance of nursing education.

Conclusion 9. — That when the licensure of a subsidiary grade of nursing service is provided for, the establishment of training courses in preparation for such service is highly desirable; that such courses should be conducted in special hospitals, in small, unaffiliated general hospitals, or in separate sections of hospitals where nurses are also trained; and that the course should be of eight or nine months' duration, provided the standards of such schools be approved by the same educational board which governs nursing training schools.

Conclusion 10. — That the development of nursing service adequate for the care of the sick and for the conduct of the modern public health campaign demands as an absolute prerequisite the securing of funds for the endowment of nursing education of all types; and that it is of primary importance, in this connection, to provide reasonably generous endowment for university schools of nursing.

One part of the report which will come in for considerable discussion is that which has to do with the question whether or not the public health nurse should give bedside care. The arguments for and against this proposition are outlined by the committee. Many, however, will question the soundness of the decision which they have apparently come to, that bedside nursing is not only desirable but also necessary if the largest results are to be secured. As a matter of fact, one's leanings in this direction will be largely colored by his appreciation of the aspect of material relief involved in bedside care when the full cost of the service is not exacted, and also of the relationship of material relief in the shape of nursing care to the expenditure of public funds by boards of health. It is a well-considered judgment of many that boards of health, either municipal or State, cannot safely combine bedside care with instruction in public health.

On the whole, this report of the committee on nursing education, awaited with a great deal of interest, ought to be of the utmost importance in furthering reforms which we all have recognized as being long overdue in nursing education. The committee is to be congratulated upon the carefully thought-out report which it has produced.

RÉSUMÉ OF COMMUNICABLE DISEASES.

August, 1922.

General Prevalence.

There were 3,304 cases of communicable diseases reported during the month; for July, 1922, there were 4,093 cases; for August, 1921, 3,295. For the past month there has been a marked decrease in chicken pox, measles and scarlet fever. Diseases showing an increase are as follows: typhoid, poliomyelitis, diphtheria, whooping cough, meningitis, tetanus, septic sore throat, pulmonary tuberculosis.

Anterior Poliomyelitis. — Fifty-five cases were reported for the month. These cases were widely distributed over the eastern part of the State, but there was no sharply localized outbreak. The number of cases for July, 1922, was 23; for August, 1921, 61.

Diphtheria. — Four hundred and eighty-two cases were reported for the month, a considerable increase over 380 for July; for August, 1921, there were 516 cases.

Dog bite requiring anti-rabic treatment was reported in 23 cases for the month as against 36 for July, 1922. The number of cases reported for August, 1921, was 18.

Hookworm. — There were 31 cases reported for the month, but practically all were among aliens who are being held for deportation.

Measles was reported in 338 cases, a very marked decrease from

July, 1922, when 1,275 cases were reported; August, 1921, showed 268.

Ophthalmia neonatorum was reported in 100 cases for the month against 63 for July, 1922, and 141 for August, 1921.

Tuberculosis, pulmonary, was reported in 547 cases for the month; the number for July, 1922, was 506 and for August, 1921, 515.

Typhoid Fever. — One hundred and one cases were reported for the month, 73 for July, 1922, and 113 for August, 1921.

Whooping Cough. — Four hundred and eighty-three cases were reported during the month, 413 for July, 1922, and 375 for August, 1921.

RARE DISEASES.

Anterior poliomyelitis was reported from Ashland, 1; Attleboro, 3; Boston, 10; Brookline, 2; Dartmouth, 1; Dudley, 1; Everett, 2; Fall River, 7; Lawrence, 1; Lynn, 2; Marblehead, 3; Medford, 1; Melrose, 1; Nantucket, 1; New Bedford, 1; Newton, 1; Northbridge, 1; Somerville, 7; Springfield, 1; Swampscott, 2; Taunton, 1; Webster, 3; Yarmouth, 1; Methuen, 1; total, 55.

Dog bite requiring anti-rabic treatment was reported from Arlington, 1; Attleboro, 1; Belmont, 1; Billerica, 1; Boston, 3; Cambridge, 3; Lowell, 7; Lynn, 1; Methuen, 1; Somerville, 1; South Hadley, 3; total, 23.

Dysentery was reported from Adams, 1; Boston, 2; Chelsea, 2; Melrose, 1; total, 6.

Encephalitis lethargica was reported from Lynn, 1; Salem, 1; Webster, 1; total, 3.

Epidemic cerebrospinal meningitis was reported from Boston, 2; Fall River, 2; Lowell, 1; Southbridge, 1; total, 6.

Hookworm was reported from Boston, 31.

Malaria was reported from Boston, 1; Lowell, 1; total, 2.

Pellagra was reported from Boston, 1.

Septic sore throat was reported from Boston, 1; Fall River, 1; Haverhill, 1; New Bedford, 2; Salem, 3; Whitman, 1; Winchester, 1; total, 10.

Tetanus was reported from Beverly, 1; East Bridgewater, 1; Gloucester, 1; Haverhill, 1; Hingham, 1; Melrose, 1; Northampton, 1; Worcester, 1; total, 8.

Trachoma was reported from Boston, 4.

DISTRIBUTION.

All Communicable Diseases.

	August, 1922.	August, 1921.
Total cases (all causes)	3,304	3,295
Case rate per 100,000 population	83.9	84.4

Certain Prevalent Diseases.

	August, 1922.	August, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:			New Bedford	(9)	12
Total cases	482	516	Quincy	(3)	9
Case rate per 100,000 population	12.2	13.2	Boston	(112)	216
			Brockton	(4)	15
			Brookline	(0)	4
			Lynn	(12)	19
			Peabody	(1)	4
			Salisbury	(0)	4
			Belmont	(1)	3
			Billerica	(1)	3
			Watertown	(4)	7
			Fitchburg	(3)	11
			Southbridge	(0)	4
			Worcester	(16)	22
			Holyoke	(1)	6
			Great Barrington	(0)	6
Measles:			Fall River	(12)	19
Total cases	338	268	Provincetown	(0)	27
Case rate per 100,000 population	8.6	6.9	Boston	(69)	130
			Braintree	(0)	5
			Newton	(2)	5
			Norwood	(0)	4
			Beverly	(0)	4
			Newburyport	(0)	7
			Salem	(1)	6
			Webster	(0)	10
			Northampton	(1)	9
			Springfield	(4)	11
Scarlet fever:			Carver	(0)	3
Total cases	210	231	Fall River	(0)	7
Case rate per 100,000 population	5.3	5.9	Somerset	(0)	3
			Brockton	(2)	8
			Quincy	(2)	4
			Rockland	(0)	3
			Whitman	(0)	3
			Amesbury	(0)	3
			Chelsea	(2)	5
			Lynn	(3)	7
			Malden	(2)	11
			Lowell	(5)	8
			Waltham	(1)	6
			Westford	(0)	3
Typhoid fever:			Plymouth	(0)	2
Total cases	101	113	Holbrook	(0)	4
Case rate per 100,000 population	2.6	2.9	Lawrence	(1)	4
			Somerville	(1)	3
			Waltham	(0)	2
			Winchester	(0)	3
			Southbridge	(0)	2
			Worcester	(7)	9

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

Certain Prevalent Diseases — Concluded.

	August, 1922.	August, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.		
			Attleboro	(1)	5
			Falmouth	(0)	3
			Mansfield	(0)	7
			Ashland	(0)	3
			Quincy	(10)	21
			Wellesley	(0)	14
			Everett	(1)	7
			Malden	(4)	9
			Boston	(128)	158
Whooping cough:			Braintree	(0)	4
Total cases	483	375	Newton	(2)	5
Case rate per 100,000 population	12.2	9.6	Peabody	(0)	3
			Stoneham	(0)	3
			Andover	(0)	9
			Arlington	(0)	5
			Chelmsford	(0)	3
			Medford	(0)	6
			Lancaster	(0)	6
			Worcester	(8)	27
			Holyoke	(0)	10
			South Hadley	(0)	4
			Great Barrington	(0)	11
Tuberculosis, pulmonary:					
Total cases	547	515			
Case rate per 100,000 population	13.9	13.1			
Tuberculosis, other forms:					
Total cases	44	57			
Case rate per 100,000 population	1.1	1.5			

September, 1922.

GENERAL PREVALENCE.

There was a general increase in the more prevalent communicable diseases for the month. Diseases showing an increase for the month are anterior poliomyelitis, diphtheria, ophthalmia neonatorum, scarlet fever, typhoid fever and whooping cough. Anterior poliomyelitis was reported in 63 cases against 55 for last month and 54 for September, 1921. Diphtheria was reported in 578 cases for the month, 481 for August, 1922, and 525 for September, 1921. Ophthalmia neonatorum was reported in 109 cases against 100 for the previous month. There were 149 cases reported in September, 1921. Scarlet fever was reported in 281 cases against 208 for the previous month and 279 for September, 1921. Typhoid fever was reported in 131 cases against 101 for the previous month and 124 for September, 1921. Whooping cough was reported in 637 cases against 483 for the previous month and 247 for September, 1921.

Chicken pox was reported in 53 cases against 60 for the previous month, and 61 for September, 1921.

Measles. — During the month 269 cases were reported against 338 for the previous month, and 201 for September, 1921.

Pneumonia, Lobar. — There were 86 cases reported for the month against 91 for August and 126 for September, 1921.

Tuberculosis, pulmonary, was reported in 457 cases for the month against 547 for the previous month and 512 for September, 1921.

Gonorrhea was reported in 493 cases and *syphilis* in 179 cases.

RARE DISEASES.

Anterior poliomyelitis was reported from Arlington, 1; Attleboro, 3; Belmont, 1; Boston, 15; Brockton, 1; Brookline, 1; Cambridge, 2; Clinton, 1; Danvers, 1; Dennis, 1; Eastham, 1; Fall River, 2; Gloucester, 1; Greenfield, 1; Hanover, 1; Lawrence, 2; Lynn, 1; Lynnfield, 1; Malden, 1; Manchester, 1; Marblehead, 1; Medford, 2; Natick, 3; Needham, 1; New Bedford, 2; Northbridge, 1; Peabody, 1; Quincy, 1; Revere, 1; Somerville, 2; Webster, 2; Wellesley, 1; Westport, 1; West Springfield, 1; Woburn, 2; Worcester, 1; Wrentham, 1; total, 63.

Dog bite requiring anti-rabic treatment was reported from Billerica, 1; Boston, 3; Chelmsford, 1; Dartmouth, 1; Fall River, 1; Holyoke, 1; Lowell, 8; Warren, 1; Winthrop, 4; total, 21.

Dysentery was reported from Boston, 1.

Encephalitis lethargica was reported from Arlington, 1; Ayer, 1; Boston, 1; Brockton, 1; Lynn, 1; Melrose, 1; Quincy, 1; Taunton, 1; Watertown, 1; total, 9.

Epidemic cerebrospinal meningitis was reported from Boston, 1; Lancaster, 1; Lawrence, 1; Peabody, 1; total, 4.

Hookworm was reported from Boston, 5.

Leprosy was reported from Cambridge, 1.

Malaria was reported from Boston, 2; Hadley, 2; Lowell, 1; Newburyport, 1; Uxbridge, 2; total, 8.

Pellagra was reported from Boston, 2.

Septic sore throat was reported from Boston, 1; Holyoke, 1; total, 2.

Tetanus was reported from Boston, 2; Brockton, 1; Sandwich, 1; Sterling, 1; total, 5.

Trachoma was reported from Acton, 1; Billerica, 1; Boston, 4; Cambridge, 1; Worcester, 1; total, 8.

Trichinosis was reported from Boston, 1.

DISTRIBUTION.

All Communicable Diseases.

	September, 1922.	September, 1921.
Total cases (all causes)	3,564	3,218
Case rate per 100,000 population	90.5	82.5

Certain Prevalent Diseases.

	September, 1922.	September, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Diphtheria:			Boston (123) 166 Brockton (2) 15 Chelsea (4) 22 Gloucester (0) 7 Peabody (0) 10 Watertown (2) 17 Westfield (2) 11 Adams (3) 13 Dalton (0) 9 Montague (0) 11
Total cases	578	525	
Case rate per 100,000 population	14.7	13.4	
Measles:			
Total cases	269	201	Fall River (13) 67 Provincetown (0) 28
Case rate per 100,000 population	6.8	5.1	
Scarlet fever:			
Total cases	281	279	Somerville (5) 14 Waltham (1) 12
Case rate per 100,000 population	7.1	7.1	
Typhoid fever:			
Total cases	131	124	Worcester (4) 10 Adams (2) 6
Case rate per 100,000 population	3.3	3.2	
Whooping cough:			Boston (101) 211 Cambridge (27) 60 Salem (3) 16 Quincy (2) 23 Wellesley (0) 17 Lawrence (1) 28 Somerville (2) 28 Holyoke (0) 19
Total cases	637	247	
Case rate per 100,000 population	16.2	6.3	
Tuberculosis, pulmonary:			
Total cases	457	512	
Case rate per 100,000 population	11.6	13.1	
Tuberculosis, other forms:			
Total cases	71	60	
Case rate per 100,000 population	1.8	1.5	

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of August and September, 1922, samples were collected in 93 cities and towns.

There were 1,355 samples of milk examined, of which 485 were below standard, 25 samples had the cream removed, and 58 samples contained added water.

There were 126 samples of food examined, of which 19 were adulterated. These consisted of 4 samples of butter which were low in fat; 9 samples of eggs which had been sold as fresh eggs but which were found to be stale; 3 samples of sausage which contained starch in excess of 2 per cent; and 3 samples of vinegar which were low in acid.

There were 21 samples of drugs examined, of which 3 were adulterated. These consisted of 1 sample of lime water which was low in the active ingredient, and 2 samples of turpentine which contained mineral oil.

There were 16 hearings held, and 2 warnings issued, pertaining to violations of the food and drug laws.

The police departments submitted 1,021 samples of liquor for examination, 958 of which were above 2.75 per cent in alcohol. The police departments also submitted 24 samples of poisons for examination, 11 of which were morphine, 8 cocaine, 1 opium, and 4 samples were examined for poison, with negative results.

There were 36 convictions for violations of the law, $1,055 in fines being imposed.

John Bailey of Dracut, Herbert A. Dow and Henry O. True of Salisbury, Millard F. Rich of North Truro, Bernard Schruender of Methuen, Walter C. Dobra of North Attleborough, John W. Keenan of Waltham, Mary Bernard, Antone F. Duart and Thomas Lewis, all of Oak Bluffs, Antone Mederos of Somerset, Napoleon B. Madison of Gay Head, Manuel Borges and John Lewis of Westport, George W. King and Charles Sharamenta of North Brookfield, and H. P. Hood & Sons of Watertown were all convicted for violations of the milk laws.

The Union Wholesale Drug Company of Boston, George C. Wright of Somerville on 2 cases, 2 counts in one of the cases, H. A. Ballou and Dixon's Paint and Oil Store, both of Worcester, were all convicted for violations of the drug laws. George C.

Wright of Somerville, on 2 cases, and H. A. Ballou of Worcester appealed their cases.

Abraham Voloch and Joseph Voloch of Dracut were both convicted for violations of the slaughtering laws.

Allei Donovitz of Stoughton, Lawrence Mattress Company, Isaac Schneider, on 2 cases, and Maurice Seeche, all of Lawrence, Myer Perlmutter and Salem Mattress Company of Boston, Max Feldman, Benjamin Gladstone, Abraham Lanes and Benjamin Malick, all of Lynn, and Abraham Yaffe of Beverly were all convicted for violations of the mattress law. The Lawrence Mattress Company and Maurice Seeche, both of Lawrence, Benjamin Malick of Lynn, and Abraham Yaffe of Beverly, all appealed their cases.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Milk which contained added water was produced as follows: 14 samples, produced by Leroy F. Gould of Framingham; 4 samples each, produced by Antone Mederos of Somerset, John Lewis of Central Village and John W. Keenan of Waltham; 3 samples, produced by Mariam Borges of Central Village; 2 samples each, produced by Manuel R. Mederos of Rochester and Lewis R. Wallace of South Sudbury; and 1 sample each, produced by Sarkis Kachanian of North Andover and Thomas Petrosky of Leverett.

One sample of milk having the cream removed was produced by each of the following: —

John Kalibainen of Maynard, Joseph Bagdon of Sunderland and Stephen P. Howland of Adamsville, R. I.

One sample of vinegar which was low in acid was produced by William Orpin of Worthington.

There were two confiscations, consisting of 448 crates of decomposed peaches and 198 pounds of decomposed chickens.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of July, 1922: 1,682,280 dozens of case eggs, 470,676 pounds of broken-out eggs, 7,108,166 pounds of butter, 789,049 pounds of poultry, 4,153,620 pounds of fresh meat and fresh meat products, and 2,678,534 pounds of fresh food fish.

There were on hand Aug. 1, 1922, 18,620,055 dozens of case eggs, 1,308,143 pounds of broken-out eggs, 15,510,851 pounds of butter, 3,313,267½ pounds of poultry, 19,163,473 pounds of fresh meat and fresh meat products, and 11,059,384 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of August, 1922: 1,160,370 dozens of case eggs, 512,136 pounds of broken-out eggs, 3,925,792 pounds of butter, 472,460½ pounds of poultry, 3,577,702 pounds of fresh meat and fresh meat products, and 2,368,032 pounds of fresh food fish.

There were on hand Sept. 1, 1922, 17,054,295 dozens of case eggs, 1,677,086 pounds of broken-out eggs, 16,431,582 pounds of butter, 2,390,220½ pounds of poultry, 17,710,094 pounds of fresh meat and fresh meat products, and 12,433,068 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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COMMON COLDS.

Frederick T. Lord, M.D.

MUCH confusion must still obtain in the classification of the acute upper tract infections until their etiology is known. It is at present customary to regard as colds the relatively mild recurrent, catarrhal, self-limited inflammations of the upper air passages, habitually and widely prevalent among the population, and of greatly increased incidence during the colder months of the year. The endemic prevalence and high rate of morbidity would inevitably tend to obscure the relation in origin of one case to another, but rapid spread through groups of closely associated individuals suggests contagion from person to person. Little is known regarding immunity. Certain persons are insusceptible, others suffer repeated attacks in rapid succession. Transient protection probably follows an attack. The common cold so closely resembles uncomplicated epidemic and pandemic influenza as to suggest that the two diseases may be due to the same cause.

The Relation of Influenza to Colds.

From this point of view the common cold may serve to keep the cause of influenza alive, and thus bridge the gap between recurring outbreaks of influenza. The manner in which periodic visitations of influenza take place is yet unsolved. Tracing the origin and course of the different epidemics has always presented great difficulty. In some of the great pandemics, and notably the two last, the spread has in general been from east to west, but to fix actually upon any one definite point of origin has been impossible. In the years intervening between the great pandemics there are constantly recurring local outbreaks of influenza, more or less widespread and of varying intensity. The cause probably maintains its existence by constant passage from person to person, and perhaps in the endemic acute coryzas, until, under suitable conditions of lowered population immunity in some locality, its invasive properties, enhanced by selection through repeated transfer, make possible another pandemic.

Theories as to the Cause of Colds.

The cause of colds is thus far unknown. There is little to support the still popular belief that they arise in consequence of exposure in wet weather, wet feet, sitting in wet clothes or draughts, and rapid cooling of the body when overheated. The great frequency of such exposures without ill effects suggests merely a chance relation. Nansen's experience of freedom from colds among the members of his expedition under exposure to the extremely low temperature of the far North, and the development of colds and coughs among many of the party when on their return they landed at a thickly settled port, suggest that exposure to cold alone is not a sufficient cause.

The seasonal incidence, contagiousness and local and general manifestations with fever, by analogy with other diseases, suggest an infection as the cause. Such organisms as the types of pneumococcus ordinarily inhabiting the mouth, micrococcus catarrhalis, influenza bacillus, staphylococci, hemolytic streptococci, streptococcus viridans and diphtheroids which form a part of the normal flora of the upper respiratory tract have been assumed to be the cause, their invasion of the mucous membranes being favored by certain circumstances, such as exposure. The investigations of Rossbach (Berl. Klin. Woch., 1882), Müller (Deut. Klinik 1903–04), Miller and Noble (Journ. Exp. Med. 1916, XXIV, 223) and Mudd, Grant and Goldman (Annals of Otology, Rhinology, and Laryngology, March, 1921) suggest that following chilling of the body surface in animals and man there may be produced changes favorable to local invasion of the mucous membranes by organisms already present and otherwise harmless. This theory does not serve to explain contagion from person to person. The common cold is so clear cut in its clinical picture and course as to suggest a single definite etiologic factor, and numerous investigations have failed to relate to the disease any one organism or group of organisms commonly present in the respiratory tract. This group of organisms uniformly appear in the disturbances of the respiratory tract due to mechanical and toxic causes, and in such specific infections as measles, whooping cough and the bronchitis accompanying typhoid fever, and is to be regarded in colds and influenza as well as in these diseases as a secondary invader.

DISTINCTION BETWEEN THE COLD ITSELF AND COMPLICATIONS.

An important distinction from an etiologic point of view, however, should be made between the cold itself and its complications and sequelæ, to which it stands in the same relation as do influenza, measles, whooping cough and diphtheria to their complications and sequelæ. The specific agent giving rise to the primary disease acts usually only as a predisposing cause, serving to break down the normal defensive mechanism presented by an intact mucosa, and enabling organisms always present and ordinarily harmless to excite infection.

A FILTERABLE VIRUS THE PROBABLE CAUSE.

An unidentified virus seems the most likely explanation. Kruse (Münch. med. Woch., 1914, LXI, 1547) filtered through a Berkefeld filter the diluted secretion blown from the nose of an assistant with an acute cold. This filtrate on installation into the nasal passages of thirty-six healthy persons led to the development of typical colds in fifteen, or 42 per cent, after an incubation period of two to three days. Using a similar technic, Foster (J. A. M. A., 1916, LXVI, 1180, and Journ. Inf. Dis. 1917, XXI, 451) gave typical colds to nine of ten healthy individuals. Cultures under anaerobic (ascites-tissue) conditions showed a minute organism with which also colds were produced on inoculation in all of eleven subjects. Schmidt (Deut. Med. Woch., Oct. 21, 1920, XLIII, 46) was unable to confirm these results. Further similar investigations should be undertaken, but the convincing character of Foster's work makes a filterable virus the most promising present explanation.

THE SEASONAL INCIDENCE.

The greatly increased incidence of colds during the colder months of the year may largely be ascribed to the increased opportunity for contagion through contact, droplet and dust infection in houses, trains, street cars, theatres, halls, etc., during this period of the year, and the consequent opportunity for an increase of virulence of the virus by repeated passage from one individual to another. Lack of sunshine may also be a factor. Greater temperature variations at this season may play some part in the heightened morbidity. Mudd, Grant and Goldman suggest that reflex vasoconstriction and ischemia of the mucous membrane of the upper air passages, observed after chilling of the body surface, may lower local resistance against infection. Overheating and absence of sufficient moisture indoors are possible factors. Though infected tonsils and adenoids may be the starting point of infections involving other parts of the tract, it seems unlikely in the present state of our knowledge that they can be concerned in the etiology of common colds.

THE SYMPTOMS.

The symptoms are very variable in intensity. Prodromata are lacking. The attack may begin suddenly or gradually. Malaise, chilliness, general pains, headache and slight fever are common. There is likely to be sneezing and lacrimation and nasal occlusion, with watery nasal discharge becoming more abundant and mucoid. A dry raw burning sensation in the pharynx or soft palate often accompanies the nasal manifestation. Swallowing may be difficult in consequence of pharyngeal inflammation. Inspection shows hyperæmia and swelling of the affected mucous membranes. Leucocytosis is absent. The more distressing symptoms gradually abate within two to three days, but an increased nasal secretion is likely to last for a longer period. Though in most cases no complications occur, there may be extension of an inflammatory process to the paranasal sinuses, through the Eustachian tubes to the middle ear, and involvement also of the larynx, trachea and bronchi. Diminishing cough and mucopurulent expectoration may persist from a few days to several weeks. Involvement of the accessory sinuses and the deeper parts of the respiratory tract is to be regarded as a complication rather than as part of the disease, and may be ascribed to infection by organisms commonly inhabiting the upper air passages.

COMPLICATIONS OF THE COMMON COLD.

Though commonly regarded as insignificant, colds are indirectly responsible for much suffering, even serious and fatal illnesses. The "winter cough" of persons advanced in years is usually initiated by a common cold recurring each fall, beginning in the nose or throat with extension downward into the deeper parts of the respiratory tract, and persistence of cough and expectoration throughout the remainder of the cold season. The underlying disturbance here is usually a failing circulation, respiratory infection tending in combination with passive pulmonary congestion to persist over a much longer period than usual. In the histories of patients with pulmonary tuberculosis it is often noted that the illness is initiated by a cold which, starting in the upper air passages, is followed by cough and expectoration. Here the simpler infection apparently makes active a previously slumbering tuberculous process. Among our patients with lobar pneumonia about one-half give a history of a cold followed by cough within a short period of the onset of the pneumonia. The infection of the deeper parts of the tract in connection with the cold may be assumed to favor implantation of the pneumococcus into the lung. Acute infections of the respiratory tract, following a cold, constitute the most important predisposing factor in post-operative pneumonia.

The Diagnosis.

The diagnosis is easily made. The manifestations of simple coryza and influenza are identical. Malaise and prostration are in general more pronounced in influenza, but as these features are variable in both diseases the two cannot be differentiated in the present state of our knowledge apart from recognized epidemics and pandemics of influenza, and as already mentioned they may be one and the same disease. It is desirable always to have the initial catarrh of measles in mind. A history of exposure, Koplik's spots and oculonasal catarrh may be of assistance in suggesting the diagnosis before the eruption of measles appears.

Prevention.

Complete success in prevention can hardly be expected until the causative agent is known and its mode of transmission understood. Meanwhile, however, we should apply the preventive measures in general applicable to respiratory infections, directing our efforts toward diminishing the opportunities for contact, droplet and dust infection. There is this added incentive to a constantly increasing effort toward the prevention of transfer of respiratory infections from one person to another, — that success in this direction would not only diminish the incidence of common colds, but also of such other more serious diseases as pneumonia, measles, diphtheria, whooping cough and tuberculosis. Just as an increasing morbidity with more rapid transfer of organisms from one individual to another tends to heighten virulence, so a diminishing morbidity and slower passage from one host to another may be expected to diminish virulence and in turn to lower the incidence of disease.

Isolation of persons with colds is impossible, but the observance of certain precautions is nevertheless desirable. Persons with colds should avoid unnecessarily close contact with others, and, so far as possible, stay away from meetings, theatres, halls and other places where persons congregate. When abed with the acute manifestations, handkerchiefs or cloths soiled with nasal secretion should be placed in a paper bag pinned to the bed, and boiled before they are handled. Opportunity for drying and distribution as dust of nasal discharges or expectorated material should as far as possible be avoided. Dry sweeping of rooms should not be permitted and vacuum cleaners are to be preferred. An abundance of sunlight in rooms will diminish the chance of infection. Respiratory infection may be transmitted from the mouth or nose of one person to another by the spraying of droplets during coughing or sneezing without covering the mouth with the handkerchief; by contact with contaminated table utensils, drinking cups, pencils or other articles which find their way to the mouth; and by promiscuous spitting. Soiled handkerchiefs should not be shaken. The leaves of books and public documents should not be turned by moistening the finger in the mouth. Board of health regulations against expectoration in public places should be much more strictly enforced. The appeal to the public in these matters may be made, on the ground that certain of these practices are bad manners as well as dangerous to public health.

THE DANGER OF OVERCROWDING.

Though it is obvious that the transfer of infectious material from one person to another is inevitable under the conditions in which we live within doors, there can be no doubt but that overcrowding greatly increases the danger. The experiences of the army during the late war illustrate this in the greatly increased incidence of acute respiratory infection among the men as compared with the civil population. Pneumonia was, for example, nine times more frequent in the army than among the civil population of the same age group. Though such other factors as a lowering of resistance from exposure, overwork and fatigue played a part in the higher morbidity, an increased opportunity for contagion in the close proximity of susceptible individuals in barracks, tents and the mess was probably largely responsible. Crowding to the extent obtaining in the army was unavoidable in the face of a great national emergency, but was nevertheless a serious menace and responsible for the loss of many lives. Thorough cleaning and airing of the barracks, head to foot sleeping, screening by the cubicle system, and separation by screens at mess will to some extent diminish the danger. Overcrowding in civil is more dangerous than in military life, as it more constantly operates to increase the transmission of virulent organisms, and hence there should be a persistent effort to improve housing conditions, especially in the cities. The influence of dust in spreading respiratory infections should be combated by diminishing the amount of city dust and smoke. The danger to children of inhaling infectious material is lessened by keeping them indoors on windy or dusty days. In the presence in any community of a menacing prevalence of respiratory infection mass meetings should be forbidden and schools should be closed. Among other measures are those which tend to improve individual resistance by increasing bodily vigor, such as cold bathing, sleeping with the windows open, spending much time in the open air, cool morning baths followed by friction, sufficient food, avoidance of exposure, overwork and fatigue, a suitable balancing of exercise and rest, and the avoidance of unfavorable environmental conditions, such as overheating of rooms, inadequate moisture and bad ventilation. Chronically infected tonsils and adenoids had best be removed unless some contraindication exists.

EXPERIMENTS WITH PREVENTIVE VACCINATION.

Such suggestions may serve to limit the amount of respiratory infection. In diminishing the number of those attacked, some avoidance of rapid increase of virulence may be obtained; but preventive measures must go farther than this, and some method must be devised which will strike more nearly at the root of the matter. It is natural to turn, in a search for relief, to the application to colds of vaccination which has proved so successful in the practical elimination of smallpox and typhoid fever. It is possible to secure in laboratory animals an increased resistance against infection with many different types of organisms inhabiting the upper air passages. By the inoculation of dead organisms in increasing doses the animal may be protected against many times the otherwise fatal dose of the particular organism used in the experiment. The defensive reactions of the animal are in the highest degree specific, however, and afford no protection against any other organism. Though there is little ground for the belief that such organisms as pneumococci, influenza bacilli, hemolytic streptococci and streptococcus viridans, or any other of the bacteria commonly inhabiting the upper air passages, are concerned in the etiology of colds, it was important that the attempt should be made to diminish the frequency of colds by the use of vaccines containing such organisms. Success or failure in preventive inoculations with these organisms would also throw light on their etiologic relation with the disease. Jordan and Sharp (Journ. Inf. Dis. XXVIII, 1921, page 357) from November, 1919, to June 1, 1920, gave three doses of a vaccine containing pneumococci, influenza bacilli, hemolytic streptococci and streptococcus viridans to 448 persons, of whom 246, nevertheless, contracted 464 colds, while among 461 unvaccinated controls 238 contracted 401 colds, indicating that such vaccines do not influence in any noteworthy degree susceptibility to ordinary colds. This failure may be taken not only as evidence that such preventive vaccination is unsuccessful, but also indicates in some degree, at least, that such organisms are not concerned in the etiology of colds. In spite of this, commercial houses manufacture and extol polyvalent vaccines in prevention, claiming as a scientific basis for the product the isolation of the organisms from persons with colds. Unfortunately, however, the problem is not so simple as the commercial houses would have us believe. There is little theoretical justification for the use of autogenous vaccines containing organisms obtained by ordinary cultural methods, and no satisfactory evidence in their favor has thus far been produced.

TREATMENT.

Many colds are so mild that there is no interference with the patient's occupation. There are certain desirable precautions, such as rest in bed while there is fever and caution against chilling of the body, exposure to draughts without sufficient clothing, and rapid cooling when overheated, especially during convalescence and while cough and expectoration persist. The disease is self-limited and thus far beyond our control. There is no specific treatment. Polyvalent or other vaccines in treatment have not even the merit of their successful use in any disease of known etiology in which they might be available. Nothing more could be expected of them than an unnecessary annoyance in addition to the already existing discomforts. Local nasal and pharyngeal applications and sprays of antiseptics can hardly be expected to kill microörganisms without injury of tissue, and may thus do more harm than good. Medicines are usually unnecessary, except for distressing headache and general pains.

CO-ORDINATION OF PUBLIC AND PRIVATE AGENCIES IN THE MUNICIPAL FIELD.

Horace Morison, Executive Secretary, Boston Health League.

THE present-day tendency is toward the centralization of effort in health and social work. An aid to effective health work in any city is a form of association or federation of public and private agencies through which representatives of these agencies meet to discuss problems of a common interest and to plan joint programs for covering health needs through their joint resources.

Following the war, this desire for centralization on the part of social agencies, and particularly the health agencies, took tangible form in Boston in the Boston Health League, an association which now numbers twenty-eight agencies and which has for its object "the greatest possible efficiency and economy in the development and dispatch of public health work, and the maximum of service through the close co-operation and co-ordination of the work of the existing public health agencies."

Other cities have similar health leagues or municipal or county health federations, notably the Cuyahoga County Public Health Association of Cleveland, the Public Health Federation of Cincinnati, and the Hennepin County Public Health Association (of Minneapolis). All these leagues seek efficiency and economy in the development of public health work through the federated strength of their member agencies. They aim to prevent duplication, to provide by joint action for gaps in the existing organizations, and in so doing to lay solid foundations for State and city health programs of the future.

ACTIVITIES OF BOSTON HEALTH LEAGUE LOCALIZED.

The Boston Health League differs from the other health leagues in that its activities have been localized in East Boston. Since July, 1921, the League has concentrated its efforts in East Boston, there making an intensive study of the public health needs, and endeavoring to sincerely and sympathetically meet these needs in co-operation with the medical profession and the social and civic organizations, through the agencies already in the field. It must be understood, however, that in the course of the work in East Boston the League has not lost sight of its larger purpose and stands ready at all times to promote increased efficiency and economy in public health work in every quarter of the city.

The generosity of the Boston Metropolitan Chapter of the American Red Cross has made the present work possible, and through the generosity of the agencies themselves the personnel has been made available for a thorough analysis of the situation. The Boston Health League has also been acting as the health group in the greater federation of the Boston Council of Social Agencies.

The Health League has recognized from the beginning that the successful co-ordination of a city's health agencies depends to a great extent on a complete understanding between the public and private agencies, coupled with an intelligent and sincere support of the public agencies by the private organizations. Further, no association of health agencies can hope to succeed that does not obtain the confidence and support of the local medical profession.

SCHICK AND DIPHTHERIA PREVENTION CLINICS.

In August, 1922, through the courtesy of the city health department, an opportunity was presented in East Boston for the Health League to bring together representatives of a number of agencies in a joint piece of public health work. The local health and social agencies and the medical profession, in conference with the Health Commissioner, agreed on a plan for publicity and joint action in the conduct of a series of Schick and diphtheria prevention clinics at the municipal building. Nurses from the health agencies and workers from the dispensary and the settlements, volunteers from the women's and scout organizations, combined to staff the clinics and assist in every possible way the physicians and nurses of the health department who were directly in charge. Lists were made of those who did not return for treatment, and the public health nurses of the private agencies made it a part of their routine to explain to these families the purpose of the clinics and the need for complete immunization.

When the opening of school made it no longer possible to conduct a general clinic at the municipal building, an unfinished case clinic was opened at the common office building of the health agencies. This clinic was placed in the charge of one of the local physicians under the direction of the health department, while the clerical assistants and nurse were supplied through the private agencies. In this way in a few weeks with little effort the percentage of those receiving a third treatment in the general clinic was raised 9 per cent.

Following the wish of the city health commissioner to continue pre-school age diphtheria prevention clinics throughout the year, and to utilize local resources for this purpose, the Health League made a representation to the East Boston medical society of the need. As a result, the local physicians appointed one of their number to conduct such a clinic. At the common office building of the health agencies you may see weekly this diphtheria prevention clinic, the local physician giving the toxin antitoxin, while a Community Health Association nurse assists, and workers from the private agencies co-operate, in the keeping of the records and in the management of the clinic. This clinic is carried on under the direct supervision of the city health department, and the doctor in charge is responsible to the Boston health commissioner.

A plan for additional health units in Boston offers further opportunity for the Health League to bring to the support of the municipal authorities the combined nursing services and carefully directed organizations of private agencies that should be invaluable in the development of these health centers.

NOTES ON THE MATERNAL AND INFANT HYGIENE PROGRAM.

Merrill Champion, M.D., Director, Division of Hygiene.

It will be recalled that in the September-October number of "The Commonhealth" an outline was given of the types of activity which the Department of Public Health hoped to carry on for the better promotion of the hygiene of mothers and infants. The following more or less disconnected notes will serve to indicate the way in which this program has been carried out to date.

Considerable progress has been made along all three lines of activity as laid down in the previous report, namely, a field study of maternal and infant deaths, a field study of local child hygiene facilities, and an informational service. It will be clearer, perhaps, if each of these phases is taken up separately and in sequence.

I. Study of Maternal and Infant Deaths.

During the last four months there have been two physicians, and for part of the time three physicians, engaged in this field study. Because of the fact that the deaths for the whole year had to be looked up in a brief space of time, attention was centered largely on the maternal deaths and on a study of hospital facilities for maternity cases. Up to December 1 we have studied 181 maternal deaths and 170 infant deaths, and 62 hospitals have been visited.

Certain interesting facts are being emphasized again and again in the reports of the physicians studying these cases.

(*a*) The progress in getting this type of information is, of necessity, slow. When a mother dies the family is apt to be broken up and to move away from the address given as the place of death of the mother. Then, again, physicians are busy men, and are hard to get hold of in order to talk over the cases with them. This type of difficulty ought to be more easily overcome next year, since the deaths for the whole year will be studied more nearly at the time of their occurrence. In other words, we shall have twelve months in which to study the deaths occurring during the twelve months.

(*b*) Another great difficulty is that of obtaining records. Many physicians rely entirely upon carrying their records in their heads and place very little upon paper. The same is found to be true of many hospitals, to a surprising degree.

(*c*) It is found that, on the whole, the practicing physician is most co-operative. He is willing to take the time to discuss a given case with our physicians, and we have felt that much valuable information has been obtained in this way.

(*d*) There seems to be no standard or usual way of handling prenatal care. Many physicians have lamented the fact that they cannot get patients to come to them sufficiently early in order that they may give them proper prenatal care. Many families who have been talked with seem utterly unable to understand why a woman should go to her physician for prenatal care unless she has something serious the matter with her.

(*e*) There is the problem of the midwife in the cities, although perhaps not nearly so great as in many States. Certain striking contrasts are observed in some of the cities between the employment of the midwife in one section and the non-employment of the midwife in an apparently similar section of the city.

II. Study of Local Child Hygiene Facilities.

For this work the Department has employed a supervising nurse and five child hygiene nurses. During the last four months 101 towns have been visited and studied to a greater or less degree. In this direction, too, a great many interesting facts have been brought out.

(*a*) Comparatively few agencies carrying on child hygiene work have a clear and definite idea as to the proper nursing program for the promotion of child hygiene.

(*b*) The records of many of the local nurses seem to be incomplete. They are apt to deal only with numbers of cases without going into the necessary detail as to classification.

(*c*) A noteworthy deficiency found in hospital records was that there seemed to be no way of telling from the record whether or not the patient had gone to the hospital because of complications in her case, or whether she came as a matter of routine because a hospital delivery was preferable to one at home.

(*d*) A serious difficulty encountered was the great discrepancy between local records of births and deaths and the State record. It is found that one town will include in its number of births all those who were born in that town during the year, regardless of whether they belonged to the town or came from some other town to be delivered. They also included all the deaths within their borders, in the same fashion. Another town separates out the births and deaths, charging itself only with those which occurred in families belonging within that town. This makes it almost impossible to compare the records of various towns if their own statistics are used. It is to be hoped that towns will adopt the State method of charging each town with all the births and all the deaths which occurred within its borders during the year, without reference to residence. The figures which are being used by the Department of Public Health are those furnished by the State Registrar of Vital Statistics from the office of the Secretary of State.

An interesting phase of this investigation has been a study of the towns of Franklin County as a whole. This was made preparatory to participation in the State Conference of Social Work which was held in Greenfield in November. Franklin County is one of the most homogeneous counties in the State, having no cities and only one town of any considerable size. It is pretty largely a rural county. Climatic and geographical conditions may be said, to a certain extent, to militate against the best service in the smaller towns during the winter. Many of the towns are small in population and are diminishing in size from one census period to another.

In spite of some of these disadvantages our study of Franklin County revealed a condition which, while far from ideal, is none the less relatively favorable. The nursing service of the county, outside of the larger places, is obtained from the Red Cross and the County Tuberculosis Association. These organizations sell service to the smaller towns at cost, and in this way small communities utterly unable to carry the overhead expense of doing the work by themselves are able to get fairly adequate service at small cost. The probabilities are that, for the present, at least, wisdom would dictate that additional service be obtained through the same sources. This type of service is enabling these small communities to carry out the intent of the mandatory school nurse law of 1921.

So far as prenatal care is concerned there would seem to be a weak spot. Yet it is hard to decide what relationship the lack of this care in this type of community bears to the infant mortality. Owing to the extremely small number of births in any given town the infant mortality fluctuates from year to year, varying perhaps from nothing one year to two hundred the next year. Under circumstances like these, naturally, statistics are not worth much. However, it would seem that in time much greater interest could be stimulated in the importance of prenatal care.

Like all the country communities, the towns of this county have a problem in getting defects corrected which are discovered by the medical examination of the school children.

Many other points brought out by this localized survey cannot be touched upon in the brief compass of a report like this.

III. INFORMATIONAL SERVICE.

The informational service has been an extension of the regular work of the Division of Hygiene for some years past. A number of popular articles have been written for newspapers, and many of our pamphlets have been recast and new ones written. A small start has been made in the direction of simple, inexpensive advertising in the newspapers, especially in the smaller towns of the State. The purpose of this has been solely to call to the attention of the mothers and prospective mothers of the State the need of making more use of the services of competent family physicians to prevent accidents to themselves during pregnancy and illness on the part of their babies. Similarly, sets of lantern slides have been prepared for distribution in moving-picture houses.

Our child hygiene exhibit has been duplicated so that now it serves a wider audience. Our new nutrition instructor is planning a study course in the simple elements of nutrition for prospective mothers.

A most important part of our maternal and infant program is the gathering of facts and the analyzing of these facts in order that they may be available, not only to public health workers but also to the public. In this issue of "The Commonhealth" is being published a statistical study of one of our Massachusetts towns.

A BRIEF STATISTICAL STUDY OF INFANT MORTALITY IN A TOWN IN MASSACHUSETTS, 1922

Angeline D. Hamblen, A.B., Statistician, Massachusetts Department of Public Health.

THE following brief study will give an idea of the investigative maternal and infant hygiene work that is being done by the Massachusetts Department of Public Health. The same general plan is followed for each city and town in the State. First, a clerk copied certain information from the death certificates filed by this town in the office of the Secretary of State. In the case of an infant under one year this information was the place and date of death, name and address of mother, name, age and birthplace of infant and if it was premature or stillborn, name and address of physician, and the cause of death. In the case of a woman whose death certificate showed any indication that she died from diseases caused by pregnancy or confinement, the information copied was place and date of death, name, home address, birthplace, occupation of deceased, whether married or single, the name and address of the physician, and the cause of death. This information was given to one of the doctors, who visited the physician and family of the deceased and obtained the following data: race stock, birthplace, age, number of years in the United States, ability to speak and read English, and occupation of mother and father; particulars as to number, general intelligence, and evidence of disease in the family; particulars of the housing conditions and work and income of mother and father; particulars about pregnancies, with especial reference to the last pregnancy; and particulars of the prenatal, obstetrical and postnatal care and feeding.

A nurse from the Department surveyed the town and obtained the following information: area, population, chief nationalities, changes in racial composition in past five years, tax rate, valuation, industries; particulars about the health department as to names, appropriation, work covered, school committee, housing conditions, water, milk, schools, sewerage, garbage, vital statistics; particulars of nursing service as to number of patients receiving prenatal care, type of instruction, number of patients receiving nursing care at time of delivery and after delivery, infant welfare nursing, type of service, and medical and hospital service.

The town studied has a population of about 7,500, 85 per cent of which are Portuguese, Italians and Poles. One company employs 3,500 people and owns many of the houses. The rents are low, but in the Portuguese section the houses are dirty and sometimes three and four families live together. Many of the women work in the mills, either giving their babies a bottle of canned milk and leaving them till noon, or putting them in charge of a neighbor who also cares for four or more other babies. It might be mentioned here that mothers cannot get ice or cow's milk. The town employs a part-time nurse and has a hospital for which the manufacturing company supplies the heat and light.

The figures in this report are necessarily confined to infant deaths because between Jan. 1, 1922, and Sept. 14, 1922 (the date of this study), there had been only one maternal death. This woman died of pulmonary tuberculosis shortly after delivery. She was thirty-three years old and had been born in Portugal. She had had three children who had all died under two years. She had been attended by a midwife. The baby was premature and lived three months. The housing conditions were very bad, and the father sick.

The general death rate, the birth rate and infant mortality rate of this town have been higher than the rates for the entire State throughout the past five years: —

YEAR.	General Death Rate.	Infant Mortality Rate.	Birth Rate.
1917	20	219	51
1918	30	227	56
1919	15	150	48
1920	18	158	55
1921	13	131	42

As is usual these figures show that in a year when the birth rate was high the infant mortality was high, and *vice versa.*

The chief causes of death were gastroenteritis and prematurity. The mothers whose babies died from gastroenteritis were all Portuguese. Those whose babies died from prematurity were from the United States, Canada and Scotland.

TABLE 1. — *Number and Causes of Infant Deaths by Age.*

CAUSE.	Less than One Day.	One Day.	Three to Six Days.	One Week.	Two Weeks.	Three Weeks.	One Month.	Two Months.	Three Months.	Six Months.	Nine Months.	Total.
Premature	1	4	1	1	–	1	–	–	–	–	–	8
Gastroenteritis . .	–	–	–	–	–	–	1	–	7	1	–	9
Enterocolitis . . .	–	–	–	–	–	–	1	–	–	2	1	4
Bronchopneumonia .	–	–	–	–	–	–	–	1	–	1	2	4
Acute bronchitis . .	–	–	–	–	–	–	–	–	–	–	1	1
Bronchitis	–	–	–	–	–	–	–	–	–	–	1	1
Marasmus	–	–	–	–	–	–	1	–	–	–	–	1
Congenital heart (?) .	–	–	–	–	–	–	1	–	–	–	–	1
Unknown	–	–	–	–	–	–	–	–	1	–	–	1
Stillborn	9	–	–	–	–	–	–	–	–	–	–	9
All causes . . .	10	4	1	1	–	1	4	1	8	4	5	39

TABLE 2. — *Causes of Infant Deaths and Birthplace of Mothers.*

CAUSE.	Portugal.	Austria.	United States.	Canada.	Scotland.	Russia.	Italy.	Poland.	Unknown.	Total.
Premature	–	–	1	4	2	–	–	1	–	8
Gastroenteritis . . .	9	–	–	–	–	–	–	–	–	9
Enterocolitis	1	2	1	–	–	–	–	–	–	4
Bronchopneumonia . .	1	2	1	–	–	–	–	–	–	4
Acute bronchitis . . .	–	–	–	–	–	–	1	–	–	1
Bronchitis	–	1	–	–	–	–	–	–	–	1
Marasmus	–	–	1	–	–	–	–	–	–	1
Congenital heart (?) . .	–	–	1	–	–	–	–	–	–	1
Unknown	–	1	–	–	–	–	–	–	–	1
Stillborn	2	1	1	1	2	1	–		1	9
Totals	13	7	6	5	4	1	1	1	1	39

TABLE 3. — *Causes of Infant Death and Month in which Death occurred.*

CAUSE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	Unknown.	Total.
Gastroenteritis	–	–	–	2	1	–	–	3	1	2	9
Premature	3	2	1	–	–	–	–	2	–	–	8
Enterocolitis	–	1	–	–	–	–	2	1	–	–	4
Bronchopneumonia	1	2	–	–	1	–	–	–	–	–	4
Bronchitis	–	–	–	–	1	–	–	–	–	–	1
Acute bronchitis	–	–	–	–	–	–	1	–	–	–	1
Marasmus	–	–	–	–	–	–	–	–	1	–	1
Congenital heart (?)	1	–	–	–	–	–	–	–	–	–	1
Unknown	–	–	1	–	–	–	–	–	–	–	1
Totals	5	5	2	2	3	–	3	6	2	2	30
Stillborn	–	–	–	–	3	1	–	4	1	–	9

Most of the deaths were in families where the total weekly income was not over $24, and where the housing conditions were poor.

TABLE 4. — *Infant Mortality and Total Weekly Income.*

WEEKLY INCOME.	LIVE BORN.		Stillborn.
	Under One Month.	One Month to One Year.	
Below $15	–	1	1
$15–$24	1	7	–
$25–$34	4	3	–
$35–$44	–	2	1
$45	–	1	–
Good	–	1	2
Fair	1	1	–
Poor	1	1	–
Unknown	1	5	5
Totals	8	22	9

NOTE. — Six families had some insurance.

TABLE 5. — *Infant Mortality and Housing Conditions.*

Live born:	
Good	7
Fair	3
Poor	13
Very poor	6
Unknown	1
Total	30
Stillborn:	
Good	4
Poor	3
Very poor	1
Unknown	1
Total	9

TABLE 6. — *Infant Mortality and Screens.*

Live born:	
Number of families having screens	11
Number of families not having screens	17
Unknown	2
Stillborn:	
Number of families having screens	7
Unknown	2

NOTE. — Eight deaths due to gastroenteritis were in families *not* having screens; 1 death due to gastroenteritis was in family having screens.

The greatest number of deaths were babies whose mothers were between twenty and twenty-four years old, or between thirty and thirty-four years old.

TABLE 7. — *Infant Mortality and Age of Mother.*

AGE OF MOTHERS.	NUMBER OF INFANT DEATHS.	
	Live Born.	Stillborn.
20-24	8	–
25-29	3	2
30-34	7	2
35-39	5	–
40 and over	2	3
Unknown	5	2

The first and seventh child had least chance to live.

TABLE 8. — *Infant Mortality and Order of Birth.*

NUMBER OF BIRTHS IN ORDER.	Live Born.	Stillborn.
First child	10	1
Second child	2	3
Third child	3	–
Fourth child	3	–
Fifth child	–	–
Sixth child	2	2
Seventh child	8	1
Eighth child	–	–
Ninth child	1	–
Tenth child	–	1
Eleventh child	1	–
Unknown	–	1

The statistics for this small group of 30 babies may not seem impressive, but they do show that the infant mortality in this town could be reduced, and point out some of the evils against which the work should be directed.

TABLE 9. — *Infant Mortality and Number of Years Mother has been in the United States.*

NUMBER OF YEARS IN UNITED STATES.	NUMBER OF INFANT DEATHS.	
	Live Born.	Stillborn.
3	1	–
4	1	–
5	1	–
6	4	1
7	–	1
8	2	–
9	3	1
10–15	1	3
15+	8	–
Unknown	9	3

TABLE 10. — *Infant Mortality and Education of Mother.*

Reads English	11
Does not read English	18
Unknown	1
Speaks English	15
Does not speak English	14
Unknown	1

TABLE 11. — *Infant Mortality and Occupation of Mother.*

Live born:	
Mothers gave occupation "at home"	17
Mother worked in mill till one week before baby was born	1
Mothers worked in mill until three weeks before baby was born	2
Mothers worked in mill until one month before baby was born	2
Mothers worked in mill until three months before baby was born	2
Mother worked in mill until five months before baby was born	1
Mothers gave occupation as mill worker, time not specified	3
Unknown	2
Stillborn:	
Mothers gave occupation as "at home"	7
Mother worked in mill until seventh month	1
Unknown	1

TABLE 12. — *Infant Mortality and Prenatal Care.*

CAUSE.	No Prenatal Care.	Some Prenatal Care.	Early Prenatal Care.	Unknown.
Premature	5	–	1	2
Gastroenteritis	7	–	–	2
Enterocolitis	3	1	–	–
Bronchopneumonia	4	–	–	–
Bronchitis	–	1	–	–
Acute bronchitis	–	1	–	–
Marasmus	–	1	–	–
Congenital heart (?)	1	–	–	–
Unknown	1	–	–	–
Stillborn	5	1	2	1

Table 13. — *Infant Mortality and Attendant at Birth.*

Live born:	
Physician	17
Midwife	11
Nurse	1
Unknown	1
Total	30
Stillborn:	
Physician	8
Unknown	1
Total	9

Table 14. — *Infant Mortality and Feeding.*

Breast feeding only	8
Mixed feeding	3
Artificial feeding only	12
Unknown	7

THE COMMONHEALTH.

Bimonthly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

Social Problems related to Venereal Diseases, Massachusetts Reformatory for Women. — It is gratifying to know that we are following out in detail six recommendations made by Dr. Valeria Parker at the last Prison Congress (October, 1922) in Detroit, Mich. These recommendations were given as a program for treatment of venereal diseases in a reformatory.

In 1911 the recording of the history of venereal diseases obtained from the inmates as they were committed was practically all that was done in that regard. However, in 1913 we began taking blood for the Wassermann examination, and in 1917 began giving arsphenamine intravenously. During the war this institution had between three and four hundred women inmates, as it did Federal work, and as these women were camp followers a large number of them were infected with venereal diseases.

In 1917, 93 per cent were positive to gonorrhea and 58 per cent were positive to syphilis; in 1918, 97 per cent were positive to gonorrhea and 58 per cent to syphilis; and in 1919, 97 per cent were positive to gonorrhea and 47 per cent positive to syphilis. It was during the war period that such high percentages of venereal disease were found.

In 1922 there were 133 women admitted to the institution. Twenty-six, or 19 per cent, had positive Wassermanns, and 65, or 49 per cent, had positive gonorrhea. Twelve per cent were infected with both diseases. Therefore it is possible to see by these figures the decrease in venereal diseases found in this institution. Of those admitted during 1922 only 10 had lesions of syphilis on admission, or were suspected of being infected. Five gave a history of having had previous treatment, making 15 of whom we obtained or had any knowledge of syphilitic infection.

There are only a few on admission suffering from an acute stage of gonorrhea. The smears are taken within twenty-four hours after admission, and if found positive, treatment is instituted at once.

All inmates on admission receive a thorough physical examination, and have the blood and the vaginal smear taken. When they come up for parole they are again examined, and held if in need of further medical treatment. According to Acts of 1920, chapter 306, at the expiration of sentence an inmate is held in the institution if she is in an infectious stage, or if, in the opinion of the physicians, it is best to hold her for fear that she may be a menace to public health. It has been our plan here to hold a girl until three negative Wassermanns were obtained, or three negative smears. The average length of time usually required to obtain a negative blood is ten months, and for the negative vaginal smear, ten to twelve months.

In the year 1922 of 27 operations, 7 were made necessary because of previous venereal infection.

There are, on the average, 30 babies resident in the institution. Their bloods are taken for Wassermann reactions. In a survey of mothers admitted to the institution for the last five years, 10 per cent were found to have had positive Wassermanns, 74 per cent positive for gonorrhea, and 9 per cent for both diseases. Six babies had evidence of congenital syphilis, and there was no history of antispecific treatment being administered to the mother before birth of child. This past year we have as yet obtained no positive blood from our babies, most of whom are below two years.

All pregnant women with positive bloods receive antenatal treatment, and as yet we have had no babies with evidence of congenital syphilis.

If a woman is found to have a positive blood, her relatives are advised, during some interview, to have blood examinations taken of the members of her family and treatment if necessary. If the case is considered one of congenital syphilis, the social history receives special attention in regard to the history of syphilis in the parents.

Lumbar punctures are taken in all cases where there is a suspicion of neuro-syphilis, and in cases that have not responded to continuous antispecific treatment. When a woman is paroled, the medical history, recommendation for further blood examination, vaginal smear examination and treatment if necessary are given in a conference with the parole agents.

By this presentation of the usual routine followed at the reformatory we believe it is quite plainly demonstrated that a woman on leaving it is free for the time being from syphilis, at least in the infectious stage, and therefore is not a menace to the community into which she is going. It might be added, also, that we draw, usually, from that class of women who have been exposed to venereal diseases, and we therefore feel the great necessity of thorough examination and intensive treatment while with us. Too much stress cannot be laid upon the necessity of complete medical equipment and an efficient corps of nurses and physicians, a thorough investigation of conditions in the home and of the previous environment, and careful follow-up work during parole. — DORRIS PRESSON-KRAUS, M.D.

Course on Maternal and Infant Hygiene for Nurses. — In the world-wide movement for the saving of the lives and the health of mothers and babies there is no more vital factor than the public health nurse. It is she who goes into the homes of rich and poor; it is she who knows the families in her town or her district; it is to her that young mothers turn — and should turn — when they need the help that she in her experience can bring them.

Nothing is more essential than that our public health nurses should have a thorough knowledge of this comparatively new type of work, — new from the viewpoint of public health only, — and that they should understand and participate in the plans which have been initiated by the State Department of Public Health, and in which doctors, hospitals and nursing organizations are already lending valuable aid. They must know these things if they are to carry on their own work in accord with the State-wide plan. Only by such co-ordination can a truly effective piece of work in maternal and infant hygiene be done in our State.

The Division of Hygiene has planned a study course on maternal and infant hygiene which was given in Boston on January 8, 15 and 22, as follows: —

FIRST DAY, JANUARY 8.

Subject: *Prenatal Care.*

Morning session — Presiding, Dr. George T. O'Donnell, State District Health Officer.

Problem of Maternity Care . . The State Plan for the Protection of Maternity and Infancy.	Dr. Merrill E. Champion, Director, Division of Hygiene, Massachusetts Department of Public Health.
Medical Care of the Pregnant Woman (with demonstration).	Dr. Robert De Normandie, Instructor in Obstetrics, Harvard Medical School.
Nursing Care of the Pregnant Woman.	Miss C. A. Lemner, Supervising Nurse, Division of Hygiene, Massachusetts Department of Public Health.

Afternoon session — Presiding, Miss Helen C. Reilly, Nursing Assistant to District Health Officer.

Pregnancy Clinics	Miss Helen Fowler, Boston Lying-In Hospital, Pregnancy Clinics.
Mothers' Classes (with demonstration).	Miss Miriam Ames, Maternity Supervisor, Community Health Association.

SECOND DAY, JANUARY 15.

Subject: *Maternal Care.*

Morning Session — Presiding, Dr. George T. O'Donnell, State District Health Officer.

Technique of Maternity Care .	Miss Grace Bulmer, Supervising Nurse, Boston Lying-In Hospital.
Care of the New Born and of the Premature Infant.	Dr. Richard M. Smith, Assistant Professor of Child Hygiene, Harvard University, Associate Physician, Children's Hospital.

Afternoon session — Presiding, Miss Helen C. Reilly, Nursing Assistant to District Health Officer.

Maternity Nursing Care as a Community Problem.	Miss Mary Nelson, Director of Nursing Service, New England Division, American Red Cross.
Community Responsibility for Maternity Service.	Miss Sarah Fisher, Honorary President of Falmouth Visiting Nurse Association. Now with the Red Cross.
Maternity Service in this District .	Dr. M. A. Southard, Dr. Mary De Kruif, Dr. Susan M. Coffin, Physicians, Division of Hygiene, Massachusetts Department of Public Health.

THIRD DAY, JANUARY 22.

Subject: *Special Factors in Prenatal and Maternity Care.*

Morning Session — Presiding, Dr. George T. O'Donnell, State District Health Officer.

Infant Feeding	Dr. Fritz B. Talbot, Clinical Professor of Pediatrics, Harvard Medical School.
The Family of the Syphilitic Child .	Miss Frances Mayer, Social Worker, Division of Communicable Diseases, Massachusetts Department of Public Health.

Afternoon session — Presiding, Miss Helen C. Reilly, Nursing Assistant to District Health Officer.

Nutrition in Pregnancy and the Postnatal Period.	Miss Lou Lombard, Health Instructor in Foods, Division of Hygiene, Massachusetts Department of Public Health.

Mouth Hygiene (Maternal and Infant).	Miss Evelyn C. Schmidt, Health Instructor in Mouth Hygiene, Division of Hygiene, Massachusetts Department of Public Health.
State Service in Maternal and Infant Hygiene.	Dr. Merrill E. Champion, Director, Division of Hygiene, Massachusetts Department of Public Health.
Question Box.	

This course will be repeated in various sections of the State.

It is the purpose of the Department of Public Health to send a personal invitation to every public health nurse in the State to attend one of these courses. If any nurse in a town within about twenty miles of Boston fails to receive such an invitation she is hereby invited to attend the course as announced above.

As later programs are arranged they will be announced in "The Commonhealth" and in local papers. The dates for the second series of conferences, which will be held in Springfield, are February 6, 13 and 20. — M. R. L.

ITEMS FROM THE SCHOOL HYGIENE QUESTION BOX.

DURING the recent school hygiene conferences, held under the joint auspices of the State Department of Education and the State Department of Public Health, about an hour was devoted at each conference to a question box. The questions turned in for discussion were many and interesting. It is proposed to publish a few of these from time to time, with a short discussion of each.

1. What legal authority is there for physical examinations of the school children as complete as are called for in the school record card soon to be prescribed by the Department of Education?

Answer. — Under General Laws, chapter 76, section 57, the school committee is required to cause every child in the public schools to be separately and carefully tested or examined at least once in every school year, to ascertain defects in sight or hearing and other physical defects tending to prevent his receiving the full benefit of the school work or requiring modification of the same in order to prevent injury to the child or to secure the best additional results, and shall require a physical record of each child to be kept in such form as the Department [of Education] may prescribe. Section 58 of the same chapter requires the Department of Education, after consultation with the Department of Health, to prescribe test cards and blanks, record books, etc.

2. How many children should a school nurse have under her supervision in order to do her work to the best advantage?

Answer. — The answer to this question depends upon a number of factors, such as distances to be traveled, type of population of the town, transportation service, and so on. A good general rule, however, is that a full-time nurse who has the assistance of a part-time physician should have not more than 2,000 school children to look out for. When distances are great, or when the school children need a great deal of attention, this figure should be reduced to 1,500, 1,000, or even a smaller number.

3. What per cent underweight should a child show in order to receive special attention from the school nurse?

Answer. — A child 10 per cent or more under weight should receive such special attention. The figure 10 per cent is used because it represents a reasonable average. It is not intended to be a strictly accurate figure, since our knowledge of malnutrition is still too incomplete for us to try to use smaller figures. As a matter of fact, it should be emphasized that the determination of malnutrition should not rest alone upon the relationship of weight to height and age.

4. Are the school physicians or the school nurses to test the eyes and ears in the high school?

Answer. — The law states that the tests of sight and hearing shall be made by the teachers.

5. When a small rural town cannot afford to train a graduate nurse, is it advisable to employ a so-called experienced nurse?

Answer. — It is highly desirable in every instance that a town employ a graduate nurse for school hygiene work. Furthermore, it is desirable that in addition to this training, the nurse shall have had some public health training. Towns may obtain such service at a reasonable cost by sharing their nursing service with other towns. Under the law, a superintendency district or union may employ a school nurse. In certain parts of the State several small towns are buying first-class service from private agencies.

DIAGNOSTIC SERVICE FOR TROPICAL AND EXOTIC DISEASES.

George C. Shattuck, M.D.

THE Department of Tropical Medicine of the Harvard Medical School has organized, for the service of the public through the medical profession generally, a diagnostic laboratory affiliated with the Service for Tropical Diseases at the Boston City Hospital.

So far as the nature of the particular problem allows, final reports will be rendered on material sent to the Department of Tropical Medicine. When it is not practicable to make the diagnosis from material that can be sent, and the presence of the patient is necessary, unless the Health Department should deem it advisable to place the case elsewhere, the patient can be referred to the Service for Tropical Diseases at the Boston City Hospital, where the necessary examination will be made either in the out-patient department (Tuesday or Thursday mornings) or after admission to the ward beds of the Service for Tropical Diseases. The necessary diagnostic procedures will then be carried on either at the Boston City Hospital or at the Harvard Medical School through the agency of the Department of Tropical Medicine.

A list of diseases in regard to which the Department of Tropical Medicine is prepared to advise as to prevention or diagnosis follows.

Physicians are invited to write or to telephone to the Department of Tropical Medicine for information about its diagnostic service or about the best methods of obtaining material for examination.

TROPICAL AND EXOTIC DISEASES.

[Diseases printed in italics have been found in Massachusetts.]

SECTION I. PROTOZOAN DISEASES AND DIAGNOSTIC METHODS.

1. Malaria: *tertian, subtertian, quartian.* Examination of blood smears or fresh blood preparations.
2. Trypanosomiasis: *African sleeping sickness.* Animal inoculations. Chagas fever (South American Trypanosomiasis. Examination of blood smears or fresh blood preparations. Spinal fluid.
3. Leishmaniasis: *Kala azar.* Animal inoculations. *Oriental sore.* Examination of scrapings from lesions. American Leishmaniasis. Examination of sections of tissue.
4. *Amœbiasis.* Examination of fresh fæces.
5. Infection with: (*a*) Balantidium coli. (*b*) *Giardia intestinalis* (lamblia). (*c*) *Trichomonas intestinalis* (cercomonas). (*d*) Chilomastix mesnili. Examination of fresh fæces.

SECTION II. SPIROCHETAL DISEASES AND DIAGNOSTIC METHODS.

1. *Yaws.* Examination with dark field of serum from lesions and of stained preparations.
2. *Relapsing fever.* Examination of fresh blood preparations and stained smears. Animal inoculations.
3. *Rat-bite fever.* Dark field examination of fresh blood and of stained specimens.
4. Infectious jaundice. Animal inoculations. Agglutination test with patient's blood. Urine examination.
5. *Yellow fever.* Animal inoculations. Serum reactions. Examination of fresh blood and stained preparations.

SECTION III. BACTERIAL INFECTIONS AND DIAGNOSTIC METHODS.

1. Plague. Examination of blood cultures and cultures from material from gland puncture. Animal inoculations.
2. Tularense infection (deer-fly fever). Examination of cultures of blood and material from glands. Animal inoculations.
3. *Undulant fever.* Examination of blood cultures. Agglutination test.
4. *Bacterial dysentery.* Examination of cultures from fæces. Agglutination test.
5. *Cholera.* Examination of cultures from fæces. Agglutination test. Pfeiffer's reaction.
6. *Leprosy.* Microscopical examination of nasal secretion and scrapings from lesions.

SECTION IV. INFECTIONS OF UNKNOWN ETIOLOGY AND DIAGNOSTIC METHODS.

1. *Typhus fever.* Agglutination reaction of Weil-Felix. Pathological examination of skin.

2. Rocky Mountain spotted fever. Animal inoculations with blood.

3. *Inguinal granuloma.* Examination of smears from lesions. Examination of sections of tissues.

4. *Tropical Phagedena.* Examination of smears from lesions. Examination of sections of tissues.

5. Veldt sore. Examination of smears from lesions. Examination of sections of tissues.

SECTION V. MYCETOMA AND DIAGNOSTIC METHODS.

1. *Madura foot.*

2. *Blastomycosis.* Microscopical examination of fresh and stained preparations from lesions.

3. Sporotrichosis. Cultures from lesions.

SECTION VI. PARASITIC INFECTIONS AND DIAGNOSTIC METHODS.

1. *Filariasis.* (*a*) *Filaria Bancrofti* (endemic elephantiasis). Examination of fresh and stained blood preparations. (*b*) *Filaria loa* (diurna). Examination of fresh and stained blood preparations. (*c*) Onchocerca volvulus (filaria volvulus). Examination of fresh and stained blood preparations, and examination of sections of lesions.

2. *Distomiasis.* (*a*) Paragonimiasis (endemic Hemoptysis). Examination of sputum for ova. (*b*) Schistomiasis. I. *Schistosomum hematobium* (vesical bilharzia). Examination of urine or fæces for ova. II. *Schistosomum mansoni* (rectal bilharzia). III. Schistosomum japonicum. Complement-fixation test with blood. (*c*) *Clonorchiasis.* Examination of fæces for ova. (*d*) Other liver flukes. I. Fasciolopsis buski. Examination of fæces for ova. II. Fasciola hepatica. Examination of fæces for ova.

3. *Ankylostomiasis* (Hookworm, Uncinariasis). Examination of fæces for ova or parasites.

4. *Tænia Infections. T. Echinococcus.* Examination of pathological material. Agglutination test. *Dibothriocephalus* (fish tapeworm). *T. Nana* (dwarf tapeworm). Examination of fæces for ova. Identification of parasites.

5. *Strongyloides.* Examination of fæces.

6. *Myiasis* of nose, of *ear*, of *gastrointestinal tract.* Examination of discharges and identification of larvæ.

SECTION VII. OTHER DISEASES OF INTEREST TO THE DEPARTMENT.

1. *Sporadic elephantiasis.* 2. *Heat-stroke,* heat exhaustion. Siriasis. 3. *Beriberi.* 4. *Scurvy.* 5. *Pellagra.* 6. *Sprue.* 7. *Smallpox.* 8. *Dengue.* 9. Chigger Disease. 10. Acarine dermatomycosis. 11. Oroya fever. 12. Verruga Preuviana. 13. Japanese River fever (Tsutsugamushi fever). 14. Pappataci or Phlebotomus fever. 15. Black-water fever. 16. Drachontiasis (guinea-worm disease.)

RÉSUMÉ OF COMMUNICABLE DISEASES.

October, 1922.

GENERAL PREVALENCE.

Diseases showing a marked increase over the previous month are as follows: chicken-pox, diphtheria, measles, mumps, lobar pneumonia, scarlet fever.

The more prevalent diseases were reported as follows: —

	October, 1922.	September, 1922.	October, 1921.
Chicken-pox	199	53	248
Diphtheria	1,021	578	887
Measles	686	268	313
Mumps	188	67	139
Pneumonia, lobar	236	86	191
Scarlet fever	554	281	431
Whooping cough	634	637	156
Gonorrhea	480	493	434
Syphilis	137	179	170

RARE DISEASES.

Anterior poliomyelitis was reported from Barnstable, 1; Boston, 6; Braintree, 1; Brookline, 1; Chilmark, 1; Dennis, 3; Everett, 1; Fairhaven, 1; Grafton, 1; Lynn, 1; Malden, 1; New Bedford, 1; Randolph, 1; Rockport, 2; Saugus, 1; Wakefield, 1; Webster, 1; Weymouth, 1; Winchendon, 1; Worcester, 1; total, 28. (There were 63 cases reported last month and 27 for the corresponding month last year.)

Dog bite requiring antirabic treatment was reported from Beverly, 1; Boston, 3; Great Barrington, 3; Lowell, 1; Medford, 3; Stockbridge, 3; Tewksbury (State Infirmary), 1; total, 15.

Dysentery was reported from Boston, 1.

Encephalitis lethargica was reported from Gloucester, 1; Lawrence, 1; Longmeadow, 1; Lynn, 2; Newburyport, 1; Newton, 1; Waltham, 1; total, 8.

Epidemic cerebrospinal meningitis was reported from Fall River, 2; Lawrence, 1; Mansfield, 1; Newton, 1; Somerville, 1; Worcester, 1; total, 7.

Hookworm was reported from Boston, 2.

Malaria was reported from Boston, 3; New Bedford, 1; Pittsfield, 1; Uxbridge, 1; total, 6.

Pellagra was reported from Boston, 1; Fall River, 1; Wellesley, 1; total, 3.

Septic sore throat was reported from Andover, 1; Boston, 2; Harwich, 7; New Bedford, 2; total, 12.

Tetanus was reported from Boston, 4; Dartmouth, 1; Lowell, 1; Milford, 1; total, 7.

Trachoma was reported from Belmont, 1; Boston, 1; Lawrence, 1; Newton, 1; Medway, 1; Woburn, 1; total, 6.

Trichinosis was reported from Boston, 3; Brookline, 1; total, 4.

DISTRIBUTION.

All Communicable Diseases.

	October, 1922.	October, 1921.
Total cases (all causes)	4,935	3,860
Case rate per 100,000 population	125.5	98.9

Certain Prevalent Diseases.

	October, 1922.	October, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Diphtheria: Total cases Case rate per 100,000 population	 1,021 25.9	 887 22.7	Fall River . . . (17) 41 Brockton . . . (6) 27 Canton . . . (0) 6 Boston . . . (172) 220 Natick . . . (0) 5 Chelsea . . . (10) 21 Danvers . . . (0) 16 Gloucester . . . (3) 11 Marblehead . . (0) 13 Rowley . . . (0) 6 Waltham . . . (10) 25 Fitchburg . . . (6) 29 Gardner . . . (1) 12 Holyoke . . . (5) 32 Springfield . . . (13) 31 Ware . . . . (0) 34 Westfield . . . (3) 17 Montague . . . (1) 9 Orange . . . (0) 8

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

Certain Prevalent Diseases — Concluded.

	October, 1922.	October, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Measles:			Attleboro (1) 15 Dighton (0) 31 Fall River (22) 234 New Bedford (2) 17 Provincetown (0) 111 Wellfleet (0) 10 Boston (78) 134 Chelsea (1) 39 Lynn (3) 16 Hopedale (0) 14
Total cases	686	313	
Case rate per 100,000 population	17.4	8.0	
Scarlet fever:			Cohasset (0) 12 Fall River (4) 13 Rockland (0) 8 Chelsea (4) 17 Stoneham (1) 18 Waltham (1) 16 Watertown (5) 29 Pittsfield (7) 17
Total cases	554	431	
Case rate per 100,000 population	14.1	11.0	
Typhoid fever:			
Total cases	80	106	
Case rate per 100,000 population	2.0	2.7	
Whooping cough:			Middleborough (1) 20 Boston (63) 183 Cambridge (19) 63 Everett (1) 14 Salem (2) 35 Wakefield (0) 11 Winthrop (0) 17 Worcester (8) 53 Williamstown (0) 37
Total cases	634	156	
Case rate per 100,000 population	16.1	4.0	
Tuberculosis, pulmonary:			
Total cases	406	451	
Case rate per 100,000 population	10.3	11.6	
Tuberculosis, other:			
Total cases	73	72	
Case rate per 100,000 population	1.9	1.8	

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[1] See note on page 344.

Interstate Reciprocal Notifications in October, 1922.

DISEASE AND LOCALITY OF NOTIFICATION.	Health Authority referred to —	Why referred.
Typhoid fever; Somerville	State Department of Health, Augusta, Me.	Onset of disease immediately after return of patient from a three months' stay at Bemis, Me.
Typhoid fever; South Boston	State Department of Health, Albany, N. Y.	Patient was at Portchester, N. Y., prior to onset of disease.

November, 1922.

GENERAL PREVALENCE.

The more prevalent diseases showing an increase over the previous month are as follows: chicken-pox, diphtheria, measles, mumps, lobar pneumonia, scarlet fever, whooping cough.

	November, 1922.	October, 1922.	November, 1921.
Chicken-pox	664	199	646
Diphtheria	1,263	1,021	1,185
Measles	1,167	686	578
Mumps	449	188	241
Pneumonia, lobar	446	236	353
Scarlet fever	807	554	661
Whooping cough	1,056	634	223

RARE DISEASES.

Anterior poliomyelitis was reported from Boston, 9; Cambridge, 2; Lawrence, 1; Lexington, 1; Lynn, 3; Northampton, 1; Orleans, 1; Somerville, 1; Waltham, 1; Woburn, 1; total, 21.

Anthrax was reported from Peabody, 1.

Dog bite requiring antirabic treatment was reported from Boston, 1; Chelsea, 6; Lowell, 1; Salem, 6; total, 14.

Encephalitis lethargica was reported from Boston, 1; Everett, 1; Lawrence, 1; Lynn, 1; Malden, 1; Marlborough, 1; Peabody, 1; Quincy, 1; Salem, 1; West Bridgewater, 1; total, 10.

Epidemic cerebrospinal meningitis was reported from Adams, 1; Boston, 7; East Bridgewater, 1; Fall River, 2; Gardner, 1; Melrose, 1; New Bedford, 1; Springfield, 1; total, 15.

Hookworm was reported from Boston, 4.

Malaria was reported from Boston, 1; Douglas, 1; Walpole, 1; total, 3.

Pellagra was reported from Boston, 1.

Rabies was reported from Boston, 1; Medford, 1; total, 2.

Septic sore throat was reported from Arlington, 1; Boston, 3; Cambridge, 1; Fall River, 1; New Bedford, 1; total, 7.

Smallpox was reported from Hadley, 1.

Tetanus was reported from Lynn, 1; Worcester, 1; total, 2.

Trachoma was reported from Boston, 11; Lynn, 1; Plymouth, 1; total, 13.

Trichinosis was reported from Holyoke, 1.

DISTRIBUTION.

All Communicable Diseases.

	November, 1922.	November, 1921.
Total cases (all causes)	7,356	5,369
Case rate per 100,000 population	186.9	137.6

Certain Prevalent Diseases.

	November, 1922.	November, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]		
Diphtheria:			Brockton	(12)	61
Total cases	1,263	1,185	Hingham	(0)	6
Case rate per 100,000 population	32.1	30.4	Natick	(0)	9
			West Bridgewater	(0)	8
			Danvers	(1)	6
			Peabody	(2)	44
			Revere	(4)	13
			Rowley	(0)	6
			Waltham	(3)	26
			Watertown	(1)	20
			Woburn	(1)	9
			Fitchburg	(9)	24
			Groton	(0)	6
			North Brookfield	(0)	6
			Winchendon	(0)	8
			Worcester	(40)	62
			Chicopee	(5)	17
			Hatfield	(0)	10
			Holyoke	(4)	37
			Ludlow	(1)	6
			Ware	(0)	27
Measles:			Attleboro	(1)	43
Total cases	1,167	578	Dighton	(0)	10
Case rate per 100,000 population	29.6	14.8	Fall River	(6)	377
			New Bedford	(4)	35
			Provincetown	(0)	77
			Rehoboth	(0)	10
			Chelsea	(4)	62
			Lynn	(4)	49
			Newburyport	(1)	9
			Somerville	(4)	13
			Hopedale	(0)	24
			Worcester	(7)	23
			Springfield	(3)	8

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

Certain Prevalent Diseases — Concluded.

	November, 1922.	November, 1921.	Cities and Towns noticeably exceeding their Median Endemic Indexes.[1]
Scarlet fever:			
Total cases	807	661	Carver (0) 3 Chatham (0) 4 Taunton (2) 9 Braintree (3) 9 Cohasset (0) 5 Newton (6) 26 Norwood (2) 8 Quincy (8) 13 Weymouth (1) 41 Haverhill (5) 24 Lynn (9) 27 Melrose (5) 16 Newburyport (0) 8 Revere (0) 8 Stoneham (0) 22 Somerville (11) 17 Townsend (0) 5 Waltham (2) 25 Watertown (1) 5 Fitchburg (2) 15 Gardner (1) 6 Worcester (35) 64 Northampton (7) 18 Pittsfield (8) 23
Case rate per 100,000 population	20.5	16.9	
Typhoid fever:			
Total cases	73	59	Taunton (0) 7 Southbridge (0) 4
Case rate per 100,000 population	1.9	1.5	
Whooping cough:			
Total cases	1,056	223	Holyoke (0) 12 Northampton (2) 9 Springfield (23) 31 Adams (0) 6 Greenfield (0) 11 North Adams (1) 7
Case rate per 100,000 population	26.8	5.7	
Tuberculosis, pulmonary:			
Total cases	455	455	
Case rate per 100,000 population	11.6	11.7	
Tuberculosis, other forms:			
Total cases	59	45	
Case rate per 100,000 population	1.5	1.2	

[1] See note on page 347.

Interstate Reciprocal Notifications in November, 1922.

DISEASE AND LOCALITY of NOTIFICATION.	Health Authority referred to —	Why referred.
Typhoid fever; Rehoboth	State Department of Health, Providence, R. I.	Patient stayed at Providence for six weeks prior to illness.
Typhoid fever; Adams	State Department of Health, Hartford, Conn.	Prior to illness patient was at Sound View for two weeks.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of October and November, 1922, samples were collected in 96 cities and towns.

There were 760 samples of milk examined, of which 122 were below standard, 13 samples had the cream removed, and 14 samples contained added water, 3 of which were also skimmed.

There were 494 samples of food examined, of which 188 were adulterated. These consisted of 8 samples of cider which contained benzoate of soda; 1 sample of condensed milk which did not bear any statement as to dilution; 138 samples of eggs, 37 samples of which were sold as fresh eggs, but were not fresh, and 101 samples as cold-storage eggs not properly labeled, 2 of which were also rotten; 30 samples of sausage, 2 samples of which had the casings colored, 16 samples contained sodium sulphite, and 12 samples contained starch in excess of 2 per cent; 1 sample of raisins which was wormy; 7 samples of scallops which contained added water; 1 sample of nuts which was 25 per cent bad; and 1 sample of vinegar which was low in acid.

There were 43 samples of drugs examined, 3 of which were adulterated. These consisted of three samples of tincture of Jamaica ginger which were labeled "double strength," but were not double strength.

The police departments submitted 970 samples of liquor for examination, 910 of which were above 2.75 per cent in alcohol. The police departments also submitted 22 samples of poisons for examination, 14 of which were morphine, 2 cocaine, 1 heroin, 2 opium, and 3 samples were examined for poison, with negative results. One sample of milk, submitted by the Chelsea police, was examined for poison, with negative results.

Three samples of coal were examined for the Department of Prisons.

There were 70 hearings held, and 28 warnings issued, pertaining to violations of the food and drug laws.

There were 55 convictions for violations of the law, $931 in fines being imposed.

James Couchiaftis, Lisoia Hazieperoa, John Megas and Christi Connos, all of Springfield, Owen McHugh of Harvard, Everett Chamberlain of Needham, Henry J. Penney of Saugus, Alois C.

Zitka of Belchertown, Manuel F. Santos of South Dartmouth, Manuel R. Mederos of Rochester, Stanley Gay of Chicopee, and Neil Olson of Braintree were all convicted for violations of the milk laws. Manuel R. Mederos of Rochester appealed his case.

Adolph F. Koval of Norwood, Hession Company, Inc., of Fitchburg, Harry Riskin and Morris Singal, both of Springfield, were all convicted for violations of the food laws.

Co-operative Grocery Stores Company and John T. Connor Company, both of Fall River, John T. Connor Company of Fitchburg, Economy Grocery Stores Company of Norwood, and Ira S. Griffin of Providence, R. I., were all convicted for misbranding.

James G. Evalyn of Ipswich and Perry T. Russell of Newton were both convicted for false advertising.

Isaac Meyer of New Bedford was convicted for violation of the slaughtering laws.

Henry Aironen, Michael Gilote, Andrew Harkonen, John Jarvinen, Thomas Kluk, George Mattis, Raphael Montuori, Daniel Nole, Rocco Rollo and United Co-operative Society, all of Fitchburg, Ulric DeBellefuille, Ceasar Francsori, Joseph R. Sauve and Wilfred T. Tessier, all of Leominster, Sarepbin Deconto, Alfred Grenier, Seraphim J. Pontes, James Yankopolos, Louis Pryos, Elzear Lucier and Joseph Placida, all of Fall River, Charles Bushup, Meyer Colodny, Joseph Feldman, James E. Foley and Morris Singal, all of Springfield, Edward Gauthier, Joseph Lawrence and George Perreault, all of Holyoke, were all convicted for violations of the cold-storage laws.

Bay State Bedding Company of Springfield and Jacob Katz of Pittsfield were both convicted for violations of the mattress law.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

One sample of milk which contained added water was produced by William Vieue of New Bedford.

Milk which had the cream removed was produced as follows: 4 samples, produced by Neil Olson of South Braintree, and 1 sample, produced by Frederick H. Lane of North Brookfield.

Three samples of milk which contained added water and were skimmed were produced by John K. Burgess of Dedham.

Cider which contained benzoate of soda was obtained as follows: 2 samples, from Granite State Sweet Cider Company of Haverhill; 1

sample each, from John Bartolmeo of Concord, William J. White of Marlborough, George Hannah of Lawrence, Leslie A. Bull of North Lexington, and Isaac Kushner of Springfield.

Sausage which contained sodium sulphite was manufactured as follows: 2 samples each, by O. Beauchamp, John Moskal, Nowak & Godek, Zasadzinski & Bzeszotarski, and Joseph Riley, all of Holyoke.

Sausage which contained starch in excess of 2 per cent was obtained as follows: 3 samples, from Nowak & Godek of Holyoke; 2 samples, from Sitarz Sausage Manufacturing Company of Chicopee; 1 sample each, from C. A. Weitz and Berlo Brothers, both of Boston, Plotnick & Suher of Springfield, and Michael Mroz of Lowell.

Scallops which contained added water were obtained as follows: 3 samples, from Cheseboro Brothers & Robbins, Inc., of New York; and 1 sample, from Caleb Haley of New York.

One sample of vinegar which was low in acid was obtained from American Pure Food Company of New Bedford.

There were six confiscations, consisting of 159 pounds of decomposed beef tenderloins, 394 pounds of decomposed chickens, 734 pounds of decomposed fowl, 140 pounds of immature veal, and 38,400 pounds of decomposed grapes.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of September, 1922: 400,080 dozens of case eggs, 215,158 pounds of broken-out eggs, 2,419,093 pounds of butter, 482,264 pounds of poultry, 2,447,940 pounds of fresh meat and fresh-meat products, and 3,871,778 pounds of fresh food fish.

There was on hand Oct. 1, 1922, 13,852,785 dozens of case eggs, 1,656,175 pounds of broken-out eggs, 15,113,136 pounds of butter, 1,934,685 pounds of poultry, 6,962,784 pounds of fresh meat and fresh meat products, and 14,555,840 pounds of fresh food fish.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of October, 1922: 486,900 dozens of case eggs, 153,210 pounds of broken-out eggs, 1,716,307 pounds of butter, 776,839 pounds of poultry, 2,451,598 pounds of fresh meat and fresh meat products, and 1,784,515 pounds of fresh food fish.

There was on hand Nov. 1, 1922, 9,996,825 dozens of case eggs, 1,495,773 pounds of broken-out eggs, 12,224,692 pounds of butter, 2,055,777 pounds of poultry, 5,031,186 pounds of fresh meat and fresh meat products, and 13,555,245 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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Conservation of Health
Mosquito Control
Septic Tanks

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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THE CONSERVATION OF HEALTH.[1]

By Dr. Eugene R. Kelley, State Commissioner of Public Health, Massachusetts.

Introduction.

To present a comprehensive picture of what is implied by the extremely common term "conservation of health" is a difficult matter. When this topic is under consideration we are not dealing with something to be weighed by the ton, measured in board feet or calculated in kilowatts, but with a subject whose inherent qualities defy exact measurement or even precision of definition. It is a subject concerning which, curiously, almost every one has some rather definite convictions, but one in which the formulæ of one group may be entirely rejected by another group. As soon as the value of a scientific fact in preventing disease or increasing vitality has been adequately demonstrated, one type of human mind concludes that this fact or discovery ought to be forthwith applied to the entire population willy-nilly. But there also exists another type of mind that tends to consider all health work as partaking in varying degrees of the faddish in quality, and to look with skepticism upon all alleged advances in health conservation. Between the two extreme views — that of the impractical enthusiast on the one hand, and of the sanitary cynic on the other — must lie the real solid field of accomplishment in health conservation.

Health conservation has one underlying peculiarity which is shared by but a few of the other subjects concerning which conservation is a live issue. The conservation of health can never be completely achieved in its broadest sense by statute or by the expenditure of money alone, important as both these considerations are in any sane national health conservation program. The conservation of health depends in the last analysis upon the conscious desire and conscious voluntary response to that desire of animate, free agent, human units acting sometimes collectively, sometimes as individuals.

I. Health Conservation of the Past.

It has been aptly said that the only guide we really have in planning for or in predicting the accomplishments of the future is the experience of the past. Only by tracing back to its beginning can the present structure of health practice be properly evaluated, present problems seen in perspective, or future trends even tentatively predicted.

It is noteworthy that this whole subject is of remarkably recent origin. There is some temptation to go into the splendid achievements of antiquity in certain lines of health promotion as exemplified by the systems of the Roman baths or Grecian athletics, for instance, and deduce from these isolated instances that there was a sound intelligent system of health preservation operating in classical days which was lost to the world for a long time thereafter. But save in the important sense in which security of property and safety of life tend to encourage higher standards of comfort and nutrition, there is little to justify the assumption of the existence of a clearly comprehended general program of health conservation during the classical period. This statement does not mean that there did not exist a deep interest in health or in various carefully elaborated systems of dietary, exercise, baths, etc., designed to promote individual health, but community health measures were most rudimentary and totally ineffective in periods of epidemic or disaster, and superstition or irrational and nonsensical theories were more apt to determine lines of hygienic procedure than scientific knowledge or even common sense.

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[1] Read before the American Association for the Advancement of Science.

Down to relatively recent days two prevailing theories fought for control of communal and personal health policies. The one that gradually predominated and settled for centuries like an incubus over all attempts at advance was the theory or belief that all illnesses, pestilences and deformities were a direct manifestation of Divine wrath, and hence that it was nothing short of impiety to make any attempt towards their control.

The type of mind which sought for rational and natural causes as an explanation of pestilences and epidemics was always hopelessly handicapped by the lack of any concept of the nature of microscopic life. Hence for centuries the scientific world elaborated and discussed theories of "miasmas," "atmospheric corruption," and the like, which make pathetic reading to-day in their blind gropings for a natural explanation of the destructive whirlwinds of epidemic disease which periodically devastated the ancient and mediæval worlds.

Apart from their inevitable limitations in the fields of epidemiology and sanitation the ancient physicians, who were often also priests of various shrines, evolved systems of personal hygiene and courses of treatment at various famous health resorts which were based on sound common-sense principles and produced results.

Where Modern Health Effort and Preventive Medicine begin.

Modern preventive medicine or hygiene may really be said to date from the discoveries of Pasteur in the world of bacteriology. The beginning of modern conceptions and practice in the field of sanitation in general, and in sewage disposal, water supply and housing improvement in particular, antedated the era of Pasteur by over a generation, and to them modern health practice is under a great and everlasting obligation. It is not illogical to call the earlier phase of present-day health practice development the era of sanitation or sanitary engineering. The epoch-making discoveries of the pioneers in bacteriology naturally took some time to reach even the leaders of medicine and general science. In fact, it was not until the late 80's of the last century that the leaders of clinical medicine in either Europe or America can be said to have generally accepted, with all the revolutionary implications contained therein, the demonstration of the existence and practical significance in health or disease of the bacteriologic world. Principles of modern sanitary engineering were already being steadily applied with notably beneficial results in matters of housing and community sanitation, but the demonstration concerning the micro-organic world was soon put to practical utilization in water and sewage filtration by sanitary chemists and engineers. One great plague, typhus fever, was placed under control during the earliest stages of modern sanitation. It might almost be said that, like Hercules, the infant science of sanitary engineering while in its cradle throttled this monster even before it was old enough to comprehend the significance of its efforts.

Without attempting to follow chronological sequençe or to place any emphasis as to their relative weight as factors in our present-day body of public health practice, several elements entering into the modern health movement deserve passing reference. All have played a definite part in our achievements in these directions. Some of them are exclusively concerned with health conservation; others have come into play as a result of economic or social advance, and their great health significance has often been entirely overlooked even by life-long students of sanitary science.

The Factor of More Widespread Education.

Foremost among these is the growth of modern education. I firmly believe that modern public health achievements would have been utterly impossible save by imparting a rudimentary understanding of modern sanitary science to the masses in school, and by our books, papers and magazines. Lacking an at least partially informed public opinion in these matters, progress in modern health endeavor would have been far below its present mark. The remnants of ancient and mediæval pseudo-science transmuted into the superstitions, folk lore, and "old wives' tales" of modern times still remain one of our greatest obstacles to the more universal acceptance and application of the life-saving principles of hygiene. If the influence of our modern school systems and the dissemination of knowledge generally by books and periodicals were not partially neutralizing the subtle mischief of these inheritances of barbarism and superstition, the passive resistance offered thereby to the progress of hygiene would be almost insuperable.

Relation of Insect World to Disease.

A prominent place among the factors of modern health development must be reserved for the far-reaching discoveries of the relationship of the insect world to disease. The knowledge of the relationship of the mosquito to malaria and yellow fever, and of the flea to bubonic plague, — to cite outstanding examples only, — has been of great significance to all of us; and not only has this knowledge resulted directly in great saving of human life, but indirectly it has meant much already, and in the future cannot help but mean vastly more, in greater freedom of intercourse and trade among nations, and in the opening up of vast areas of the world's surface to agricultural or other uses.

Extension of Food Resources.

A matter usually ignored in consideration of the factors of health conservation is the matter of food supply. I am not now considering the problem of personal nutrition or proper balance of metabolism. The thought it is desired to bring out here is the hygienic importance of having enough food of sufficient variety produced and distributed at a cost which the masses can meet. Here is the true source of much of the happy results of modern life saving for which we are altogether too prone to give credit exclusively to the laboratory and microscope, the surgeon's knife and the physician's pill. Among the many startling object-lessons of the great war none has been more dramatic than the revelation of what a period of widespread inadequate nutrition means in the morbidity and mortality tables of a nation or community. In looking back we see plainly that it was the recurring famines, followed always by fearful pestilences, which largely account for the almost incredible mortality rates of the middle ages.

Modern health work is under a tremendous debt of obligation to those discoveries in soil chemistry, to both animal and plant breeding, and to the invention of modern agricultural machinery, which together have resulted in the present standards of quantity and cost in the matter of food production.

Factor of Improved Transportation.

Bountiful production of food at reasonable cost is not by any means the whole tale of the fundamental bearings of the subject of food upon health. Transportation and preservation of food by various devices have played a large part in making possible the all-year-round supply of a dietary adequate for the maintenance of the metabolism of the masses on a basis never before remotely approached. Rapid transit, modern canning processes, cold storage, have all contributed to this phase of advance in health conservation.

Improved Standards of Living.

Another factor which has entered largely into the evolution of better health standards has been what is commonly comprehended by the phrase "standards of living." This is an expression which does not lend itself well to exact definition.

It implies matters of æsthetics as well as matters of sanitation; but in such details as increased facilities for recreation and exercise, better ventilated, heated and lighted houses, workshops and buildings devoted to commercial, educational and amusement purposes, it has contributed much to the conservation of our health.

One phase of the "improved standards of living" phenomena deserves, though it all too seldom receives, special recognition for the part it has played in health promotion, and that is the development of the science of plumbing. Nothing more clearly illustrates the advance in health conservation of the past century in this country than the great advance in the amount of water per capita that is used by the average person or family to-day when contrasted with the corresponding water consumption of a few decades ago.

Effect of Improved Hours and Conditions of Labor.

A factor in the gains of our era in health promotion and life prolongation that cannot be ignored is the economic, or, more often, the combined economic and sociologic factor. A leading American public health authority[1] concludes a recent critical study of the causes of our present striking decline in tuberculosis deaths with the statement that the improved earning capacity and shorter hours of labor of the average American wage earner have contributed more to this decline than all the institutional and medical care and general educational aspects of the antituberculosis movement combined. Perhaps not all will be willing to go so far as this, but that such a statement can be made by a qualified expert in the field of preventive medicine and be generally accepted in medical and sanitary circles as a substantially sound scientific judgment is the best possible evidence of the degree to which modern sanitarians look to the field of economics and sociology for furtherance of their objectives.

Both the amount of compensation of the worker and his hours of toil are of deep significance in determining the general health of the community. It is also true that specific safeguards against the hazards of industry are a prominent part of any health conservation program. From industrial stress and strain, from extremes of temperature in industry, from dust, smoke and fumes, from undue general or local fatigue come much physical impairment, shortness of life, industrial inefficiency and community impairment. The rapid growth of the science of industrial hygiene has been the answer of industry to the significance of these discoveries.

Hours and Character of Labor for Women and Children.

Growing appreciation of the significance of woman as the replenisher and of the child as the hope of the race has wisely led to safeguards such as the world has never before witnessed against the exploitation of the mothers or the children of the nation by industry. It is too early yet to determine the full effect of these still only partially realized national policies, but that their contribution towards greater national vitality will be a substantial and important one is beyond question.

The Contribution of Medical and Laboratory Science.

Having considered a few of the most important underlying contributions to health advancement, it is now appropriate to weigh the significance of those factors usually thought of when the terms "health work" or "preventive medicine" are used. Reference is made to the direct bearings of research in pathology, bacteriology, physiological chemistry, entomology and their newer subdivisions, together with the contributions of clinical medicine and epidemiology proper to the subject of health conservation as weighed and evaluated by the methods of vital statistics. This is what is commonly meant when the term "public health" is used. The success of modern science against such immemorial enemies of human life as Asiatic cholera, hookworm, smallpox, diphtheria, and a long roll of less well-known diseases, can be traced back almost exclusively to bacteriological laboratory discoveries supplemented by careful clinical observation. As a result of careful study and correct conclusions as to their significance, the application of practical methods of prevention has been possible. In the case of such maladies as yellow fever, typhoid fever, malaria, bubonic plague and typhus fever, the same bacteriological-medical factors have been prominent, but the sciences of entomology or engineering have had to play an equally important rôle before success could be achieved.

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[1] Emerson, Haven: "The Factor of the Declining Death Rate for Tuberculosis." American Journal of Tuberculosis, 1922.

In the case of another disease group of great destructiveness to human life and efficiency, — the so-called "venereal" infections, — in addition to the discoveries of the laboratory and hospital, ethical considerations must be depended upon for any great or permanent advance.

The Phenomenon of Health Departments and other Organizations.

Step by step with these discoveries has grown up during the past fifty years a remarkable number of agencies designed to function exclusively for the preservation of human health. Some of these are agencies of government operating under different names and given widely differing prominence all the way from the health department — whose whole aim, object and reason for being represents the reaction of modern organized society to the challenge of health conservation — down to very minor organizations in governmental departments whose primary purpose is remote from health, but whose every-day functioning uncovers specialized health problems, for the handling of which it has been found necessary or advisable to create special health machinery.

Side by side with these health departments have also gradually come into existence a host of non-governmental agencies whose objective is the promotion of health. These range all the way from the vast endowed organizations, as the International Health Board of the Rockefeller Foundation, for instance, — with a budget and resources far in advance of practically all governmental health departments, — down to the smallest village's band of public-spirited women who have united to ensure the services of a home-visiting nurse for the community. In the promotion of health the aggregate influence of these organizations has been tremendous.

Statistical Record.

Now let us see very briefly what the record of fact shows in the gains of health conservation up to the present. After all, the crucial test for health conservation to meet is not so much what may be its province in the future, but what it can show in the matter of past performance. Happily for students and practitioners of sanitary science, in this respect we are on much firmer ground than the special pleaders for many other forms of conservation. To present an elaborate statistical analysis as a basis for this statement, interesting though it might be, would unreasonably prolong this paper. Hence I will merely cite a few salient features of Massachusetts' experience, with the general qualification that they may be accepted as typical of all localities where the Occidental type of civilization prevails.

In Massachusetts the average yearly death rate from all causes from 1885–88, inclusive, was 19.5 per 1,000 population; for 1920 the rate was 13.9 per 1,000. This means over 20,000 more lives were prolonged in comparison with the rate of about thirty years ago.

The infant mortality rate of Massachusetts in 1885 was 156; for 1921 it was 76. It means that whereas in 1885 a new-born infant had only a little better than 5 chances in 6 of living to celebrate a first birthday, now less than 1 child in 10 dies under the first year, — a most creditable gain, but still a fatality hazard much higher than we know to be necessary.

The death rate for pulmonary tuberculosis in 1885 was 307 per 100,000; in 1920 it was 96 per 100,000. It means that if the tuberculosis death rate had remained to-day what it was in 1885, in place of approximately 3,300 dying this year from consumption, the number would have been over 12,000.

In 1885 the typhoid death rate of this Commonwealth was 39 per 100,000; in 1920 it was 2.5. This means that, whereas less than 100 Massachusetts people died from typhoid in 1920, had the same rate prevailed as in 1885, 1,560 would have died.

In 1885 the death rate for diphtheria in Massachusetts was 78 per 100,000 of population; in 1920, 15 per 100,000 population.

In 1885 the death rate of scarlet fever per 100,000 population was 30.2; in 1920 it was 5.5 per 100,000 population.

Perhaps it would be more graphic and comprehensible to reduce the matter to terms of average expectancy of life at birth.

In 1885 the average expectancy of life for a new-born male baby in Massachusetts was 42 years (approximately); female, 43.5. Both sexes average 42.75 years. In 1920 the average expectancy for males was 53.98 years; for females, 56.33 years; both sexes, 55.1 years.

Upon reflection we can see that up to a period roughly coincident with the end of the first decade of the present century all these influences operating most prominently in connection with health conservation have certain features or characteristics which mark them off, to a certain extent, from the health conservation problems of the present and near future. In general, it may be said that hitherto the greatest emphasis has been placed, and the greatest advances made, in the field of infectious disease prevention and control. It is also quite obvious that, except in the case of the infectious diseases, such gains as have been made in promoting the health of the individual or the mass have often been due to the accidental or unexpected results of some improvement in industry or transportation, or the result of increased community interest in recreation or sociologic endeavor, rather than to a conscious deliberate attempt to improve the health of the individual or community. Broadly speaking, it may also be said, with a high degree of accuracy, that the health advances of the recent past have generally represented those things that could be done for the average citizen rather than those things which he had to do for himself.

As we turn to consider the future problems of health conservation we will note that all three of these factors will cease to be as proportionately effective as heretofore, and must be replaced by procedures along radically different lines if the full potential benefits of a sound national health program are ever to be realized.

II. Health Conservation of the Present and Future.

I have traced roughly some of the sources whence our present health-conserving agencies have sprung, and have drawn attention to the crude proof of their accomplishments as registered in increased average longevity and decreased fatality from specific morbid processes.

Broadly speaking, no such results have ever been remotely approximated before in the world's history. Egypt, Hellas, Rome, India or China knew nothing like it in the days of their greatest glory. This record of achievement is one thing which sets our era on a pinnacle apart from the remainder of recorded human existence. To be sure, deep concern over the human misery arising from bodily affliction has long been a great moral force in the world, but it is only in our own times that humanity's struggling aspirations for the alleviation of suffering have been translated into scientific achievement.

An outstanding feature of present-day health aims is the degree to which they recognize how far the lengthening of average expectancy of life up to the present time falls short of the full possibilities to be attained as an outcome of a comprehensive, well-rounded national health program. Past accomplishments in health improvement have consisted largely in triumphs over environment and in control of infections. It is in hookworm and malaria eradication, in diphtheria control, in the tuberculosis decrease, that we read most clearly our claims to distinction.

In building up the well-poised body and in cultivating the serene mind we can point to no such clear-cut victories. In these respects some authorities do not consider that we can even equal the actual accomplishments in personal hygiene that were achieved by the citizens of ancient Greece.

It should never be forgotten, however, in making such comparisons that the free citizenry of ancient Greece never represented more than 10 per cent of the total population. No records have come down to us relative to the hygienic conditions or mortality rates of the slaves and serfs who represented 90 per cent of the populations of antiquity. When proper allowance is made for the status of the slave in classical times, I am reasonably certain that our average achievement in personal hygiene to-day far surpasses the average standards of antiquity.

It is an inescapable fact that most of our gains in life prolongation hitherto have been in channels where either correction of faulty environmental conditions or an interruption of the chain of infection was indicated. It is a peculiarity of these two types of health activity that they can be carried out to a large degree by the mere passive acquiescence of the bulk of the community. It is obvious that even where efforts and results in these directions reach the maximum there will still remain untouched large segments of the health conservation field.

The Expanding Concept of Health.

These newer and as yet untouched or only lightly touched phases of health development call increasingly for active participation by the individual citizen, and this question of the reaction between the offerings of science and their acceptance by the average American citizen in the field of health promotion presents one of the most fascinating problems of our present-day schemes of human government and social relations.

There has sprung up in the past twenty years a greatly expanded concept of what health actually means. Now we are beginning to realize that but a small proportion of ostensibly well people can measure up to even very modest standards of good personal physique; that scarcely any of us out of a hundred pursue a reasonably sensible routine of personal hygiene.

To-day we are no longer satisfied with a mere negative definition of health. Health must mean something more than mere absence of acute disease. It implies a standard of personal vitality and physique that insures a positive enjoyment of existence due to a properly balanced, well-exercised, smoothly functioning bodily mechanism reacting agreeably upon the mental and emotional processes of the individual.

One of the outstanding difficult problems of preventive medicine is that of bringing home the extent to which avoidable sickness, inadequate or improper physical training in childhood and preventable accidents, all considered together, slow down our national productiveness; absorb time, money and energy that could otherwise be devoted to the greater expansion of a national cultural life; result in increased delinquency and crime; and in general add to the sum total of preventable human misery. I will not go into exact statistics on this point. The publications of the National Safety Council present a mass of startling information as to the burden of preventable accidents. The publications in recent years of the various social welfare organizations and of departments of correction, probation and charities of certain states and cities show how direct and extensive is the relationship between delinquency and non-social behavior on one side, and physical deficiency or subnormal health on the other. We have begun to accumulate a certain amount of data on the magnitude of the burden imposed on society from occasional illness, a large proportion of which could be entirely avoided through sound, intelligently applied systems of community, industrial, school and personal hygiene.

Inasmuch as such data on this subject as are available in this country are fragmentary and not checked by any nation-wide machinery, it may be more illuminating to quote the most recent British experience on this point. This quotation is made without reference to the ability of the British system of State-supervised medical practice to correct effectively the condition disclosed. The impressive facts as to sickness prevalence are sufficiently startling in themselves without here going into any consideration of the proper answer to the national problem they so clearly indicate. The British health insurance tables show that "at least 14,476,000 weeks' work are lost on an average every year through sickness. . . . That is to say, in England and Wales there is lost to the nation every year, among the insured population only . . . the equivalent of the work of 278,000 persons (working constantly throughout the year). . . . It is not only the working equivalent of 278,000 persons that the nation loses every year, but also the labor and expense involved in their care during the 14,476,000 weeks of their incapacitation. To this loss of time and capacity among the 14,000,000 insured persons, we must, to obtain the (total) national loss, add a comparable (and undeterminable) though presumably not so large proportionate loss, in respect to the remaining 23,000,000 of persons, including children."[1] So much for the facts of sickness prevalence.

The next finding of the British health insurance scheme is the one which opens up a wide range of discussion as to the reasonableness of this enormous aggregate amount of recorded sickness. It is reported that when the causes of sickness which result in this staggering amount of national non-productiveness are sought, the absences from labor due to serious diseases such as organic heart disease or tuberculosis, for example, are relatively few; but it is what is generally known as the minor maladies, such as functional impairment of digestion or of kidneys, neuritis, neuralgia, sick headache, decayed teeth, tonsillitis, bronchitis and common colds, "rheumatism," etc., that are the principal causes for which these persons seek medical advice and absent themselves from work. In the aggregate these "minor ailments" produce a truly formidable amount of suffering, sickness, idleness and loss of income. An exceptionally large proportion of just such ailments are entirely avoidable by attention to personal hygiene. Hence we see that the preventive medicine of the future must seriously concern itself with this problem as well as with its present recognized duties in sanitation and communicable disease control. The question of *how* this problem is to be best solved, whether by an enormous extension of governmental activity into the realm of the private citizen's personal concern, or by a great and revolutionary change in the conception of clinical medicine, is a totally different problem.

The Newer Terminology of Health.

This swing of the pendulum away from consideration of mass groups of the population and towards emphasis upon the health problems of the individual is very noticeable in all lines of health work, and is the best evidence now available of the directions in which we may confidently prophesy the future developments of health work will lead us. The very nomenclature coming into common use to designate the major divisions of health activity, with the word "hygiene" occurring practically uniformly as the part of the name, as school hygiene, infant hygiene, dental hygiene, mental hygiene, for example, contrasts sharply with the older divisions with which we have long been familiar, — sanitary engineering, epidemiology, vital statistics, — words indicating mass or group conceptions as sharply as the newer terms indicate the individual.

Enumeration of Prominent Health Fields of the Future.

It will perhaps suffice, in view of the necessary limitations of the present occasion, to indicate some of the hygienic measures which I can already see coming into prominence in health conservation, and which must inevitably come into much greater prominence in the future.

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[1] Sir Geo. Newman: Annual Report for year 1921, p. 27. Ch. Med. Off. British Ministry of Health.

Eugenics.

First of all comes the field of eugenics. Eugenics has become something of a football of a word, kicked about and mistreated by all sorts of special groups. That positive eugenic principles will ever become a significant feature of either national or personal hygienic practice has long seemed to me the height of the improbable. Despite the solemn pronouncements of a small group of enthusiasts who preach the physical salvation of this world by the eugenic route, human nature has never shown any tendency to be guided by eugenic considerations in approaching the question of mate selection, and I see no reason to conclude that it ever will. On the other hand, negative eugenic principles deserve to be much better understood, and it is reasonable to suppose that an important phase of future health development will be the education of individuals to a point where the dangers of perpetuating and multiplying racial defects by unwise mating will be so generally recognized that such traits as feeble-mindedness, for instance, will be gradually bred out of the racial stock.

Maternal Hygiene.

Regardless of whether eugenic principles, positive or negative, ever become a prominent factor in health conservation, it is obvious that everything pertaining to the health of the mother must receive attention if real health advance for the nation is to be achieved. The health of the mother is so closely interwoven with the health of the infant that almost instinctively we associate the terms maternal and infant hygiene. And as Sir George Newman pithily puts it, "Here is the source of the nation. From a physical point of view, what the mothers and children are the nation is and will be."

Child and School Hygiene.

Passing beyond the period of infancy we find our hygienic nomenclature chiefly focused on the general term "child hygiene," and, better to emphasize the methods by which child hygiene is to be fostered, such specialized terms as dental hygiene, school hygiene, physical hygiene or education, hygiene of nutrition and others not yet so familiar.

Passing on to adolescence and adult life still other terms are coming into wider use and into more intelligent comprehension by us as a nation. I refer to such terms as mental hygiene, industrial hygiene, personal hygiene and all they imply. This list is not by any means exhaustive, but by this very terminology of the newer health program we apprehend clearly that back of them all must lie, first, education of the individual in hygienic principles, and second, an intelligent voluntary response on the part of the individual to this education if our health conservation program for the future is ever to be made effective. In fact, we may reasonably say that the health program of the future will be effective directly in proportion to the application of four fundamental factors each of which can only be successful by the active participation of the individual citizen. These are, first, personal assimilation of the simple principles of personal and community hygiene; second, personal volition or a will to put this knowledge into effect; third, an increased degree of self-control by the average individual, with a corresponding increased ability to regulate by the rule of reason and moderation the ancient instincts of man, whether they relate to sex, food, drink, pugnacity, work or sloth, or such mental instincts as fear, hate and envy; and fourth, an increasing instinct to regulate individual hygiene by the dictates of altruistic promptings towards our fellow men, which last may sound sentimental but in reality is coldly scientific as well.

Conclusion.

The goal is now clear. It is to establish the span of average human existence upon the plane of the maximum average physiologic efficiency of the human body. Strictly speaking, up to the present time it has been only the very exceptional person who has lived a normal human life to its conclusion, for nearly all of us die prematurely. But now we know enough to change this; we know now that there is no such thing as an "inexorable law of mortality;" we know that "public health is purchasable, and within reasonable limitations each community can fix its own death rate." We know that the classic statement of Babbage, "There are few things less subject to fluctuation than the average duration of life of a multitude of individuals," is absolutely erroneous and false when checked by the experience of our civilization for the hundred years that have elapsed since he laid down this once universally believed rule.

Obviously, there is sufficient scientific knowledge extant, if intelligently and universally applied, to prolong the span of average human life by many years, and to make all these years much more abounding with the joy of living that accompanies top-notch physical condition than is the case with the average person to-day. A committee of the American Public Health Association has recently reported that whereas average American life expectancy is now probably in the neighborhood of fifty years, there is no insurmountable obstacle in sight to increasing that average expectancy by at least twenty years in the next few generations. Surely this is a goal worthy of our best endeavors.

MOSQUITO CONTROL IN MASSACHUSETTS.[1]

By George C. Whipple, Professor of Sanitary Engineering, Harvard Engineering School; Member of Boston Society of Civil Engineers.

By concerted action it will be possible to eliminate the mosquito nuisance in the inhabited parts of Massachusetts; it will not be practicable to eradicate all mosquitoes. At the outset we are confronted with a quantitative distinction hard to establish. How many mosquitoes does it take to make a nuisance? In the bedroom, one is enough; on the front porch or in the garden, one mosquito bite an hour as a maximum would not interfere seriously with outdoor life. It is not the occasional buzzing or biting of a mosquito which makes a nuisance; it is the concerted attack of half a dozen or perhaps a hundred, and their continued presence day after day, which makes rational outdoor life impossible, and which in many ways injures the health and comfort of the people. For generations the people of Massachusetts have been swearing mad against the mosquito; last summer they became fighting mad. The Anti-Mosquito Association of Massachusetts was organized. Thanks to the co-operation of the press the people of the State know about this association, but the news does not seem to have reached the mosquitoes, for even at this date (October 4) they are still rampant. The object of this association as stated in its constitution is "to stimulate interest in the suppression of mosquitoes and other insects which affect human comfort and health; to secure and spread information and to urge co-operative efforts by individuals, associations, communities, and their governments to the end that these insect nuisances may be done away with." It was realized at the outset that little could be done until a substantial organization had been effected, definite plans made and funds collected; hence no efforts were spent in summer skirmishing. The fight against the mosquito will not be successful unless it has a plan of campaign based on scientific knowledge and put in operation over a wide area. It will be the work of the association this winter to arrange a plan of action and bring it to the attention of the cities and towns of the State, especially those of the Boston metropolitan area, in order that the work of mosquito suppression may be undertaken early in the spring.

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[1] Presented before The Sanitary Section, Boston Society of Civil Engineers, Oct. 4, 1922.

Life History of the Mosquito.

So much has been written about the mosquito that it is quite generally understood that this insect has a life cycle which includes three aquatic stages, — the egg, the larva and the pupa, and one winged stage, the mosquito. It is an accepted scientific fact that water is necessary for mosquito development, but mosquitoes are found so often in places where there is no apparent standing water that the public is still skeptical on this point. It is very easy to say that the female mosquito lays her eggs in water; that after a time these hatch and become larvæ, or wigglers; which in turn become pupæ, or tumblers; and that from the pupæ the mosquitoes emerge and fly away. This, indeed, is the rule, but now comes the difficulty. Mosquitoes are not all alike. There are dozens of species, and the different species have different habits. Some mosquitoes lay their eggs in salt or brackish water, some in fresh-water swamps, and some in the rain water which collects in pools, puddles, gutters, tin cans, or even holes in trees. Other mosquitoes, with faith in nature, lay their eggs on damp ground where instinct tells them water will some time come and remain long enough to hatch out their eggs. Some species have but one brood a year; some have successive broods, as long as warm weather lasts and water can be found for eggs. I observed a curious fact last summer. The heavy rains of June and the succession of summer showers caused a tremendous mosquito crop at my home in Cambridge, while at my farm in New Hampshire there were fewer mosquitoes than for many years. Why this difference? The Cambridge mosquitoes were of the common house variety, which has successive broods all summer long. The Fitzwilliam mosquitoes were a Canadian woodland type, which has but one brood and that early. The heavy rains of May and June (14.26 inches in June) washed the eggs and larvæ out of their breeding places and carried them downstream. Few were left to trouble us. The early breeding habit of the species found at my farm is evidenced by the local saying that "when the flies come the mosquitoes go." There is no such saying in Boston.

Mosquito larvæ have their differences. The larvæ of most species live near the surface of the water or go to it frequently for aid; but there is one species that passes its larval stage at the bottom, evidently getting its oxygen from the roots of sedges. Applying oil to the surface of the water would not eradicate such larvæ.

Mosquitoes differ in their winter habits. In some species the adult mosquitoes hibernate, hiding away in cellars and old buildings, usually in the dark, and emerging in the spring ready for business. In some species the eggs are laid in the fall, retain their vitality through the winter, though frozen, and hatch in the spring. In some species both the eggs and larvæ withstand freezing.

Mosquitoes differ in their flying habits. The house mosquito seldom travels more than a few hundred yards from the place where it hatched; but the salt marsh mosquitoes often fly or are blown several miles. The mosquito which transmits yellow fever is a short flier; hence it is relatively easy to control it. The mosquito which transmits malaria flies farther; hence in order to control malaria it is necessary to extend suppression activities over much wider areas.

Some mosquitoes take delight in entering houses and will seek out minute unprotected means of access, — holes and cracks in screens, keyholes, chimneys; they will light on your shoulder while you are unlocking the front door and let you carry them in. Once in they will lay eggs in a water-closet tank, or a vase of flowers, and people will wonder how they could possibly get through the screens. As a matter of fact, few species of mosquitoes will get through a No. 16 screen; some mosquitoes will go through a No. 12. Some species seldom try to enter houses.

Without going further into details, it will be seen that in order to suppress the nuisance it is necessary to know what sort of mosquitoes we have to deal with, for measures appropriate to one species might be useless with another, and if improper measures are undertaken much money may be wasted, and discredit brought on the whole movement. Hence the problem is fundamentally one of entomology.

KINDS OF MOSQUITOES.

Entomological science has made great advances in recent years. New species of mosquitoes have been described by students in different parts of the world and given new names. In many cases the same sort of mosquito has been baptized with different names, both of species and genus, and inevitable confusion has resulted. This is equally true of all zoölogical science. Little by little entomologists are weeding out the duplicate names and giving permanent assignment of generic and specific titles warranted by priority according to the rules of scientific nomenclature. The result is that some names which have become well known are being replaced by earlier, though unfamiliar names. For example, the yellow fever mosquito is no longer *Stegomyia fasciatus*, but *Aëdes calopus*, and one of our Massachusetts friends is no longer *Culex sylvestris*, but *Aëdes vexans*.

I will not attempt to describe the various species in biological terms. This is beyond me and I will leave it to Dr. C. T. Brues, Assistant Professor of Economic Entomology, Harvard University. I may say that while laymen may easily come to recognize the more common mosquitoes from their appearance, it requires a trained entomologist to make positive identifications, because the differences between species are often very minute and may involve a study of the male as well as female, and the larvæ, as well as the mosquitoes themselves, a microscope being necessary to make some of the discriminations.

DRAINAGE.

We cannot appreciate the magnitude of the problem of mosquito control unless we learn the number, size and location of the swamp areas, as well as the ponds and pools, in which mosquitoes breed. During the summer the city engineers of the metropolitan area were asked to send to the association local maps showing roughly the location of existing swamp areas and wet lands. The data thus obtained have been put together on a map of the district. They indicate that the problem ahead of us is a large one. At present one can only guess at the mosquito-breeding areas within 10 miles of the State House, but it is probably more than 10,000 acres, — say, 3,500 acres of salt marsh and 7,000 acres of land wet with fresh water. The different tracts vary all the way from a fraction of an acre to several square miles.

The engineer must play an important part in the work of mosquito control. If permanent results are to be secured, hundreds of acres of wet lands must be drained. In this State we have both salt marshes and inland marshes, and they require different methods of treatment. Some of the land is privately owned, some of it belongs to cities and towns, and some to the State. The swamp areas sometimes extend across boundary lines. Engineers ought to help in this problem because they have been in a measure responsible for existing conditions. For example, a roadway is built across a salt-water creek; the water above the culvert backs up, holds the flood waters and gives opportunity for *Aëdes salinarius* to breed. The railroad embankments built across the swamp areas northwest of Cambridge have created conditions favorable for mosquito breeding, and there are probably many other places where this is true. When the Charles River Basin was made and streets laid out near it in Cambridge, the low-lying rectangular areas between the streets were not drained, and millions of *Culex pipiens* were found breeding there in 1918. In the Charles River drainage area some of the dams are so high that the water floods vast areas, which breed mosquitoes. A reduction of the water level, if practicable, would do a world of good. I would like to see the city engineers of the various cities and towns in and near Boston brought together as a committee to suggest co-operative measures, and very likely the Anti-Mosquito Association will call upon them for advice. It might be even better for the sanitary section of the Boston Society of Civil Engineers to take the initiative in this matter.

In some ways the condition of the low lands near Boston is worse than in years gone by. Many areas were drained by the farmers for agricultural purposes; but when city developments drove out agriculture, the old ditches began to fill up, to cave in, so that minnows and other little fish no longer swim up into them and devour mosquito larvæ as they will do if given a chance. Urban conditions should be less productive of mosquitoes than rural conditions, but apparently the worst conditions of all obtain after the farmer has given up and before his farm has been fully converted into a city. As Dr. Drown used to say, with so much truth, "A state of change is a state of danger."

There are evidences, however, that drainage is again to be taken up in Massachusetts. It ought to be taken up. There is money in it; there is health in it. The State has many square miles of wet lands going to waste. Land cannot be sold by the gallon; drained swamps can be sold at a good price.

The State now has a Drainage Board (General Laws, chapter 252, sections 1 to 14A) composed of a member of the Department of Public Health and a member of the Department of Agriculture, the function of which applies to a "meadow, swamp, marsh, beach or other low land held by several (more than two) proprietors," which it may be "necessary or useful to drain or flow" or to "remove obstructions in rivers or streams leading therefrom." On petition of the proprietors, or a majority in interest either in value or in area, the Drainage Board will make surveys, hold hearings, and, if thought advisable, authorize the formation of a local drainage district and appoint district commissioners. The commissioners are required to call a meeting of the proprietors and arrange for organizing a corporation to carry out the undertaking, if they vote to do so, under the ordinary State laws governing corporations, the proprietors being the members of the corporation, and no capital stock being required. The district drainage commissioners have charge of making the necessary improvements. The cost, which may be paid in the first instance by the county, if the county commissioners are petitioned and they so vote, is assessed on the lands benefited through the town or towns in which such lands lie. If any part of the improvement is found by the Drainage Board to be for the benefit of the public health, the expense of that part is to be paid by the Commonwealth. After the improvements have been completed the district commissioners are retired and maintenance devolves upon the district corporation, which may assess its members. Several drainage districts are already organized or are being considered. Among them are Green Harbor, Salisbury, Weweantic (Carver), and Herring River (Wellfleet).

Malaria in Massachusetts.

Malaria is not now a common disease in Massachusetts. There have been periods, however, when it has appeared and some of the epidemics were serious. Even yellow fever was prevalent here in the early days. Accounts of these early epidemics may be found in Vol. I of my book on "State Sanitation." Malaria was made a reportable disease in this State in August, 1914. Miss Hamblen, statistician of the State Department of Public Health, has compiled the number of cases and deaths for the years 1915–20. The total numbers of cases and deaths were as follows: —

Malaria Statistics.

YEAR.	Cases.	Deaths.
1915	112	6
1916	97	4
1917	78	5
1918	82	5
1919	72	4
1920	60	5
1921	49	2

Usually the number of cases has been less than 100 per year, and the disease has occurred sporadically, first in one place, then another. The places in which more than 10 cases of malaria have occurred in one year since 1914 are Boston, Fall River, Framingham, Newton, Dedham, Milford, Uxbridge. Between 5 and 10 cases in one year have occurred in Lynn, Natick, Wellesley, Douglas and Northbridge. Reports of malaria were received from 76 cities and towns, sometimes only a single case.

The facts show that while the malaria situation is not bad, as compared with States to the south, it is not as satisfactory as it ought to be. Massachusetts is within the upper limit of the southern mosquito zone and within the lower limit of the northern or Canadian zone. In other words, we are attacked both from the North and from the South. Anopheline mosquitoes are often found in the State. I found one only a short time ago at my house in Cambridge. Something else is necessary, however, to produce a malaria outbreak, — namely, persons in whose blood the malarial plasmodia are present. Such people are always liable to come here, either from the malarial regions of our own country or from other countries. Laborers from the pestilential marshes of southern Italy who were employed in digging the streets for a sewerage system spread malaria, and this gave rise to the now exploded theory that the disease was caused by a disturbance of the soil. Malaria is prevalent in many countries of Europe from which we have received immigration. I have been in certain parts of Roumania, near the marshes of the Danube, where almost the entire population had or once had had the disease. Such malaria-laden immigrants, coupled with the anopheles mosquito, are a menace to the public health. The proper remedy for this situation is quinine for the sick people, and oil or drainage for the mosquitoes.

We have not as yet, so far as I know, had dengue fever in this State. In the Gulf States it is now quite prevalent, and at times the disease is met with farther north. Perhaps it may some time come here. Yellow fever has been here.

The hopeful thing about the situation is that these mosquito-borne diseases can be controlled, and at an expense well within the means of the people. The spectacular success of Gorgas and others at Havana, Panama and in South America is being repeated in many places in the South and West, thanks to the well-sustained work of the Rockefeller Foundation and the United States Public Health Service. It is being repeated in many foreign countries, thanks to the International Health Board and to the efforts of their own health departments. The State of Florida has done excellent work in the suppression of malaria and dengue fever, Mr. George W. Simons, the State sanitary engineer, being a leader. New Jersey has for many years carried on an active and on the whole a very successful campaign against the mosquito. The city of Providence and our town of Brookline have long waged an effective campaign, and many other places near at home might be named where suppressive measures have been carried on for a longer or shorter time.

SUMMARY.

The Anti-Mosquito Association of Massachusetts has not yet announced its policy, but in the opinion of its president the following lines of endeavor must be followed: —

1. An entomological survey of the State to determine what kinds of mosquitoes are found and when and where the different species are prevalent.
2. A sanitary survey to determine the location of the wet lands and the best methods of draining them.
3. The organization of local mosquito committees, each with a local staff in charge of a field director, co-operating with the association, and with the territory subdivided again and again, in order that all parts may be inspected at frequent intervals by interested citizens.
4. The collection of local funds by local committees for local use in the actual work of suppression.

5. The use of the police power, if necessary, by the local health boards to secure the abolition of mosquito breeding conditions.
6. The collection by voluntary subscription of a small fund needed for the work of the association.
7. The appropriation of money by local governments for oiling and for any appropriate suppressive measures to be applied to public lands, such as streets, catch-basins and parks.
8. The appropriation by the State of money needed for suppressive measures in State lands (including the Boston Metropolitan District), expenditure to be made by the Metropolitan District Commissioner.
9. Persistent propaganda by the association until proper co-operation between the people, the local governments and the State government has been assured.
10. A general understanding that the above measures should be pursued actively for two or three years, with the expectation that if the measures succeed in reducing the mosquito nuisance efforts should be made to have the work carried on by the governmental authorities rather than by a voluntary association.

The suppression of mosquitoes, more than that of most nuisances, lies in the hands of the people themselves. The remedy is easy but complex. It will require the doing of many trivial things, such as picking up an old tin can, or examining the gutter of a house. There is danger of starting off vigorously and then lapsing into carelessness. There is danger lest the people be "too proud to fight." Massachusetts can get rid of her mosquito nuisance if the people are willing to take the trouble and pay the price.

THE MORE COMMON MOSQUITOES OF MASSACHUSETTS.

By Charles T. Brues, Bussey Institution for Research in Applied Biology, Harvard University.

THE world over, no insects enjoy a less enviable reputation than the mosquitoes. Although some knowledge, or at least personal observation, is necessary to make us aware of the relations of most insects to human welfare, such is not true of mosquitoes. As soon as we have entered this world and have developed our sensory functions, we begin to appreciate the annoying persistence of these insects, in search for a meal of blood. As we come of age, even if we may not have been led to realize the importance of mosquitoes from the standpoint of public health, our distaste for their attentions becomes so strong that they begin to prey upon our nerves, and as we reach the age of discretion they induce a most distressing mental condition which reaches a climax at the height of each mosquito season. The fact that mosquitoes might be banished from our surroundings by the application of early prophylactic measures only serves to make their annual visitations more annoying, for what can be more disconcerting than the question, "Why did not some one prevent it?" when it serves only to disguise the real query, "Why did not we prevent it?"

Just at present we are between mosquito seasons, and so busy battling against the rigors of a good old-fashioned New England winter that my subject may seem a bit inappropriate. Nevertheless, the spring melting of the snow marks the beginning of mosquito activity; so if we fortify ourselves against the bracing wintry air and look forward to next summer's horde of mosquitoes borne on the balmy breezes to invade our gardens and verandas, perhaps we may be able to discuss them without too great a show of unbecoming friendliness. Of one thing we can be as sure as of any recurrent natural phenomenon, and this is that the passing of a few months will bring the mosquito back again as surely as it will usher in the flowers and the vacation season. Daylight saving may await and conform to a formal dictum, but the mosquito, like the bootlegger, will yield only to individual and concerted pressure on the part of the community at large. Unfortunately, at least from the standpoint of mosquito control, the sequelæ of the mosquito's visit are more ephemeral than those of the bootlegger, unless we include in our discussion the disease-bearing mosquitoes, which are of minor importance in our region. Therein lies the reason for our apathetic attitude toward mosquito eradication, — our frenzied encounters with mosquitoes are too soon forgotten, aided, perhaps, on the morning after by a dash of household ammonia on the spots where particularly vicious individuals have nipped us.

Even the entomological fraternity failed almost universally to evince any interest in the minutiæ of mosquito habits and classification till the beginning of the present century. At that time the surprising discoveries concerning the importance of certain particular species as carriers of malaria and yellow fever naturally awakened a great interest in this group of insects. As a consequence, we now know quite accurately the particular behavior, habitat and seasonal distribution of all of our common species; and since these facts are a prerequisite to dealing with the mosquito nuisance, I shall attempt to summarize them briefly.

As is well known, mosquitoes breed only in water which is stagnant or nearly so, avoiding large bodies of water and flowing streams, although often finding suitable breeding grounds in protected or shallow areas bordering large ponds or slowly moving streams. The growing or larval stage, familiarly known as "wrigglers," are, moreover, among themselves restricted to particular types of habitats, and each species quite regularly selects its favored type.

On this account we may roughly classify the various kinds with reference to the places where their larvæ generally occur; and furthermore, as it is not difficult to identify the several species of mosquitoes in either the aquatic larval stage or in the winged adult condition, it is readily possible to determine the breeding places that supply specific localities.

A convenient grouping is the following: —

(*a*) *Salt-marsh Mosquitoes.* — These develop in brackish water, and are confined to the salt-marsh areas along the coast where the larvæ occur in pools that are inundated at high tide. The mixture of ocean water with fresh water derived from rains and seepage varies considerably in salinity from place to place, but regularly supports certain mosquitoes which are tolerant of considerable amounts of salt in solution. The typical salt-marsh species breed only in brackish water.

(*b*) *Household Mosquitoes.* — These develop in fresh water only, in various situations, sometimes even in tin cans containing water, clogged drains and gutters, or in pools. The term "household" or "domestic" is applicable to these species, as their breeding places are almost invariably very near to human habitations, whence the adults readily find their way to our gardens and porches. It must be noted, also, that at least one of the species of this group is particularly persistent in its efforts to enter houses.

(*c*) *Malarial Mosquitoes.* — The members of this group, of which only two occur in our region, are here never abundant. One of them is a potential carrier of æstivo-autumnal malaria, but the almost complete disappearance of their disease in Massachusetts during recent years renders this species of slight importance. Our malarial mosquitoes breed in pools of clean water containing considerable amounts of growing green plants. One of the main reasons for regarding this series as a special group is their importance as carriers of malaria.

(*d*) *Swamp and Woodland Mosquitoes.* — The species of this group occur in open marshy ponds and in small shaded woodland pools, some preferring the former and others the latter type of environment. They are the ones that annoy us during woodland rambles, camping trips, and those which swarm into suburban communities in proximity to their breeding grounds.

One of the practical considerations relating to all mosquitoes depends upon the distances to which the adults will migrate from their breeding grounds. Some travel for many miles, while others are very timid in venturing far afield, so that we must consider our common forms separately in this respect.

SALT-MARSH MOSQUITOES.

Along the Massachusetts coast there are only two species belonging to this group, although there is a third which commonly prefers fresh water, but in close proximity to the brackish pools. These are the following: —

1. *Aëdes sollicitans* Walker. (White-banded Salt-marsh Mosquito.)

The adult is rather golden-brown in color, due to the presence of many scales of this color on the body. The thorax bears on each side a very large silvery-white spot; and this, together with a white ring on the beak and several similar white bands on the apical joints of the legs, will serve to identify the species.

The larva is stout and heavy-set, its stoutness most noticeable as it wriggles in the water when disturbed. The breathing tube at the posterior end of the body, which is thrust through the surface film of the water when the larva is at rest, is very short, scarcely twice as long as thick. Small puddles in salt marshes often teem with larvæ, which are often quite perfectly concealed in the vegetation.

This species passes the winter in the egg stage in the mud, the eggs hatching when the pools are filled with water from high tides or extensive rains. The larvæ develop very slowly in cool weather, but as the temperature rises in midsummer they speed up and may attain full growth within a week. The eggs ordinarily do not hatch till the next summer after they have been laid, but successive hatchings of the over-wintered eggs occur as a result of floodings, especially those of the June high tides. Consequently, successive swarms of adults appear during the middle and latter part of the summer. The species is a very persistent biter, by day as well as at night.

The common barred-minnow or "Killfish" (*Fundulus heteroclitus*) feeds voraciously on the larvæ, and pools containing these fish are usually quite free from the mosquito larvæ.

The white-banded salt-marsh mosquito commonly migrates for many miles when steady breezes are blowing. Thus borne on the wind it invades not only near-by districts but also uplands, extending inland frequently for several miles and occasionally much farther. The ease by which this species may be recognized makes it easy to ascertain whether annoying mosquitoes may be thus due to migration from the salt marshes.

2. *Aëdes cantator* Coquillett. (Brown Salt-marsh Mosquito.)

This mosquito is not so easy to recognize as the foregoing one. The adult is rather large and stout, of rather uniform brown color, and lacks the silvery-white sides to the thorax. The beak is not banded with white, and the apical joints of the legs are only indistinctly ringed with white.

The larva is of the same dull gray color, although usually darker than that of *Aë. sollicitans*. Its body is equally stout, but the breathing tube is distinctly longer, from two and a half to three times as long as thick.

The life-cycle of this species is quite similar to that of the previous one, although the adults generally become abundant earlier in the season and often disappear in the latter part of the summer. In some parts of the Massachusetts salt-marsh area, however, many developing larvæ may be found during August. *Cantator* prefers water of low salinity, and consequently generally extends farther back into the marshes than *sollicitans*. It migrates for several miles inland in considerable numbers.

3. *Culex salinarius* Coquillett.

Although, in our region at least, this mosquito rarely or never breeds in brackish water, it occurs very commonly in close proximity to the salt marshes in marshy pools, ditches, etc., of fresh water. Farther inland, it is also generally distributed in the lower-lying marshy areas about Boston, and often breeds in artificial receptacles partly filled with water.

The adult is dark brown in color, without conspicuous lighter markings of any sort, except for a pale, transverse streak across the base of each abdominal segment. It is almost indistinguishable from the house mosquito, to be mentioned later. *Salinarius* overwinters as an adult, and breeds continuously during the warm season.

The larva is very different from that of the true salt-marsh species. The head and thorax are large and broad, but the abdomen is extremely slender. The breathing tube is very long and slender, eight times as long as wide, and fully one-third as long as the entire body, slightly tapering toward the tip, although its sides are straight.

This species is commonly associated with the house mosquito, *Culex pipiens*, often breeding in distinctly foul water.

HOUSEHOLD MOSQUITOES.

4 and 5. *Culex pipiens* Linné *and Culex territans* Walker. (House Mosquitoes.)

These two species are closely related; the former is apparently a European species, most abundant about the large eastern cities, while the native form, *C. territans*, is most abundant in the country districts. They may be conveniently considered together, as the appearance of both the adults and larvæ, as well as their domestic association and breeding habits, is essentially similar.

The adults are brown in color, varying from yellow-brown to quite dark, without white bands on the beak or legs, and with a rather indistinct pale streak across the base of each abdominal segment.

The larvæ resemble closely those of *Culex salinarius*, except that they are usually darker in color, and the long breathing tube is distinctly swollen at the base instead of having straight sides.

Both species breed commonly in rain barrels, tin cans containing water, watering troughs, and in all sorts of similar places close to dwellings. Occasionally the larvæ may be found in small pools or in roadside ditches at considerable distances from houses, and they also occur not infrequently in quite foul water.

In the higher and drier parts of our region, well removed from natural pools and marshes, these species cause much of our annoyance by mosquitoes. The females bite mainly after dusk and enter houses with great persistence.

These species hibernate as adults, hiding in houses, cellars, etc., during cold weather, later to make their way out in the spring. Several broods succeed one another during the season, and the mosquitoes become much more abundant in the latter part of the summer. They do not migrate to any extent.

MALARIAL MOSQUITOES.

6. *Anopheles quadrimaculatus* Say. (Northern Malarial Mosquito.)

This is the least abundant of our two species of Anopheles, and the only malaria-carrier which occurs within the State.

The adult may be readily recognized by its distinctly spotted wings, each wing bearing four small but clearly indicated brown spots. At each side of the beak of the female are two thread-like processes nearly as long as the beak, a characteristic of all species of Anopheles in distinction to our other mosquitoes, which have these processes very short. It is a rather small, brownish species and more persistent than any of our other mosquitoes in entering houses.

The larvæ breed most commonly in permanent ponds in which green plants are growing, although it occasionally breeds in tubs or barrels if algæ are growing in the water. The larva, which is very different in appearance from those of Culex or Aëdes, has the breathing tube reduced to a short tubercle, and it rests horizontally in the water in contact with the surface. It is also more noticeably bristly, and several of the abdominal segments bear stellate tufts of hairs which pierce the surface film of the water and appear as minute sparkling dots when the larva is at rest.

The adult lives over winter, hiding in cellars and similar places. There are several generations during the summer, and the species becomes more abundant as the season progresses.

7. *Anopheles punctipennis* Say.

This is larger than *A. quadrimaculatus*, and each wing bears a white spot on the front margin in addition to the darker spots which are diffuse and not so discrete as in the previous species.

The larvæ are practically indistinguishable from those of *A. quadrimaculatus*, and the two very frequently occur together, generally with *punctipennis* more abundant.

This mosquito does not generally enter houses except when in search of hibernating quarters, and causes very little annoyance in our region.

Swamp and Woodland Mosquitoes.

There are a number of species coming under this heading, and I shall mention several specifically. It must be remembered, however, that the abundance of these species often varies greatly in different places and from year to year in the same locality, and it is consequently rather difficult to pick out two or three as the commonest or most annoying.

8. *Aëdes sylvestris* Theobald. (Swamp Mosquito.)

The adult is a moderately large dark brown mosquito with the abdominal segments each bearing a distinct, broad, white cross-band at the base and a narrow white band at the base of the apical leg joints. The white abdominal bands are so deeply indented behind as to be almost cut into two parts.

The larva is rather stout bodied, of dark color, with the breathing tube one-fourth as long as the body, swollen at the base and two and one-half times as long as wide.

Larvæ occur in swamps in either permanent or temporary water, and also to some extent in woodland pools. The species overwinters in the egg stage, and becomes more abundant in the later part of the summer. The females do not ordinarily leave the swamps or woods to any considerable extent, and they do not readily enter houses.

9. *Aëdes canadensis* Theobald. (Woodland Pool Mosquito.)

The adult is a moderate-sized dark brown mosquito with the tarsal joints narrowly banded with white, and also with abdominal cross-bands, the latter not divided medially as in the species previously mentioned.

The larva is light brownish gray in color, with the breathing tube less than one-fourth the length of the body, but little swollen at the base and three times as long as thick.

Like the previous species, *Aë. canadensis* overwinters in the egg stage, producing an enormous brood of larvæ early in the spring. In late spring the main swarm of adults appears and makes life miserable for the near-by inhabitants. Later broods follow, but in lesser numbers, and a great part of the eggs from each of these remain unhatched till the following spring.

Another species with somewhat similar habits, *Aëdes fuscus* Osten Sacken, common in some parts of the State, has no supplementary broods in addition to the main one which appears during the latter part of May.

10. *Mansonia perturbans* Walker.

This is one of the most annoying mosquitoes of our region. It is very erratic in distribution, but where present is often very abundant. The adults are particularly bloodthirsty and cause extreme annoyance.

The adult is rather large, of brown color, with indistinct abdominal cross-bands, but with the tarsi conspicuously banded with white on each joint, in addition to a white band near the tip of the second of the long leg joints (tibia).

The larva is not seen unless carefully searched for, since, contrary to the habit of other mosquito larvæ, it never comes to the surface to breathe. Instead, the tip of the breathing tube, which is sharply pointed, is thrust into the roots of aquatic grasses, and oxygen is secured directly from the tissues of the plant. Thus hidden away in the swampy borders of ponds, the larva completes its development.

As we have already mentioned, there are numerous other species of mosquitoes in our region in addition to those that have been here briefly considered; but they are generally less abundant, more retiring or local in distribution and consequently less annoying. If those we have discussed were banished wholly or in part, summering in New England might become still more alluring.

ANTI-MOSQUITO WORK IN BROOKLINE, MASS.

By J. Albert C. Nyhen, Director of Fly and Mosquito Suppression, Brookline, Mass.

BROOKLINE was among the first municipalities in the United States to combat the mosquito nuisance. For twenty-two years this town has carried on successful activity in the very center of an area swarming with common and malarial mosquitoes. The policy of the town in anti-mosquito work has been twofold: first, educating all its citizens about mosquitoes and educating them to think "anti-mosquito-wise;" second, holding the nuisance in check by palliative measures, meanwhile executing and consolidating plans for the reclamation of breeding places by drainage and filling.

The problem in a general way involves a small acreage of salt marsh, many fresh-water swamps and pools and ditches, engineering blunders, construction blunders in public and private work causing many small pools, catch water basins, and receptacles on public and private dumps and about houses. Eleven different species of the common mosquito and two species of malarial mosquito have been caught from time to time during the past twenty years. Most of the species caught have been of the purely domestic type, breeding locally and not flying great distances. Two or three species were found to be strong flying active migrants, and these appeared only from time to time during seasons of very heavy rainfalls.

Only modest results should be expected from the Brookline, 1922, anti-mosquito campaign, after 2 feet of rain from May 1 to October 1. Think of that deluge during the mosquito season! It rained about every other day. But in spite of the heavy rainfall, which multiplied the breeding places of the mosquito by thousands, we obtained an extraordinary measure of success in combating the mosquito in Brookline.

There were over 700 observations made during the season to note the presence of flying or biting mosquitoes. Now in about one-half of these places, repeatedly examined, *no mosquitoes were found at all*, and in about 34 per cent, one or two were observed and caught in ten-minute periods. In other words, in 84 per cent of the places examined more than once, mosquitoes were so very rare that they did not constitute a nuisance. Of the balance, 6 per cent of the places showed the presence of a transient mosquito nuisance where one to seven mosquitoes were observed per minute. This was due to the willful resistance of half a dozen persons who failed to co-operate with the Board of Health in this work.

The cost per capita of Brookline anti-mosquito work for 1922 was about 26 cents. We could spend an additional 50 cents per capita per year for several years to execute this work more extensively.

The cost of work in Brookline should have no comparative bearing in estimating costs of work in other places. The local problem in any city or town and its particular solution there on the spot cannot be estimated on the basis of costs elsewhere without stunting the efficient solution of the problem. Officials are encouraged to solve the mosquito problems in their own city or town by estimating the costs of this work on the basis of the local unit costs prevailing in the vicinity of their homes. The cost prices of labor and materials, etc., will be found to vary considerably in different places.

The foregoing result obtained in the wettest year we have had for years should encourage all boards of health to consider undertaking this work. Mosquitoes can be controlled and restricted, but only by conscientious, trained, efficient men who know how. Even then, it is a man-sized job for solution and execution.

THE EFFICIENCY OF SEPTIC TANKS FOR THE DISPOSAL OF HOUSEHOLD SEWAGE.

By H. W. Clark.

TANKS for the retention of sewage and the digestion of sludge have for the past twenty-six years been called "septic" tanks, a name first given them by Donald Cameron, Borough Engineer of Exeter, Eng. When first written about they were much heralded as the final solution of the sludge problem in sewage disposal. Experience has shown, however, that while of value in treatment or purification of sewage, their efficiency is generally much less than at first claimed, and this efficiency varies according to the character of sewage being treated, the construction of the tank, the period of retention of sewage and climatic and other conditions.

Following the exploitation of the Exeter septic tank, many large tanks of this kind were built at the sewage disposal works of many municipalities both in this country and abroad. They have, generally speaking, gone out of favor for large works, but a modification known as the "two-story" or Imhoff tank has proved to be of great value, and tanks of this character have been and are being constructed by many municipalities.

During recent years much has been said of the value of small septic tanks for the disposal of sewage from households, hotels, etc.; and to prove to our own satisfaction the results that could be obtained in this way, two concrete, air-tight tanks have been operated at the Lawrence Experiment Station of the Department for the past two and one-half years. One of these tanks is 4 feet long, 2 feet wide and 40 inches deep, with a sloping bottom and a capacity of 185 gallons. The sewage enters the tanks through a trapped inlet, and discharges through a pipe reaching 15 inches below the surface of the sewage in the tank. A baffle is placed one-third of the distance from the inlet to the outlet, and reaches to within 8 inches of the surface of the sewage and to within 10 inches of the bottom of the tank. A trapped outlet is provided for the escape of gas, and air is carefully excluded.

A second tank consists of two compartments, each practically of the same construction as the tank just described, and has a capacity of 370 gallons. The first tank receives fresh household sewage, and the second, Lawrence city sewage as pumped at the Experiment Station. Both are so operated that theoretically the sewage is held within each for two days, — a period much longer than generally possible at municipal works, where large volumes of sewage must be handled. These tanks are large enough for use by small households.

The following results have been obtained: The effluent from each has generally been quite odorless, although occasionally the effluent from the tank receiving Lawrence sewage has had a strong odor of hydrogen sulphide. The effluents have been fairly clear, quite free from colloidal matters, containing only about 27 per cent of the suspended solids of the entering sewage, and that from the first tank, receiving household sewage, has been stable, that is, non-putrefactive, 27 per cent of the time, as shown by our analytical work. From the second tank, receiving Lawrence sewage, the effluent has been stable 21 per cent of the time. At the present time, after more than two and one-half years' operation, 35 per cent of the first tank is filled with sludge and 27 per cent of the second tank. This sludge is, of course, largely water, but is well compacted and contains about 6 per cent of solid matter. Judging from our observations from time to time, the volume of sludge is increasing slowly but steadily in each tank. Analyses show that 66 per cent of the total amount of matters in suspension in the sewage entering the tanks has been destroyed, that is, has undergone hydrolysis within them.

On the whole, these tanks have given about the results expected of them, and show that a great clarification of sewage by retention, sedimentation and destruction of the matters in suspension in sewage can be obtained in this manner. The effluents are not of as good a quality as claimed by many who have urged the installation of such tanks; neither is there a total destruction of sludge, the indications being that, of course, eventually the sludge accumulating in each of these tanks will have to be removed, as has generally proved to be true with all septic tanks, if they are to continue in efficient operation. Such tanks undoubtedly have a place in household, factory or hotel sewage disposal, and if properly constructed and of adequate capacity can be recommended for installation where connection with municipal sewers cannot be made.

THE COMMONHEALTH.

QUARTERLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
FRANCES KLEIN, S. B., ASSOCIATE EDITOR.
Room 546, State House, Boston, Mass.

"The Commonhealth" A Quarterly. — Beginning with this issue, "The Commonhealth" will appear as a quarterly. The reason for the change is not dissimilar to that which was at the basis of the change in 1919 from a monthly to a bi-monthly publication. The need for economy in governmental expenditures is being felt everywhere, and rightly enough. It is only fair that some of the saving should be in printers' ink. The editors will try even harder than before to make "The Commonhealth" stand for quality rather than quantity, and to furnish useful material for those who have the opportunity to form public opinion along public health lines.

New Associate Editor. — The editor takes pleasure in presenting to the readers of "The Commonhealth" the new associate editor, Miss Frances Klein, who will have especial charge of "interpretative publicity" relating to maternal and infant hygiene.

The Stillbirth. — The stillbirth as a factor in maternity is too often overlooked. The difference between a stillbirth and an early infant death may be one of minutes only, yet one counts in the infant mortality and the other does not. They equally represent a loss of an infant life, and back of both are the same disappointment and sorrow, worry and expense.

Here are the figures for 1922 from four towns recently studied: —

Stillbirths.	Deaths under One Month.	Deaths One to Twelve Months.
117	161	125
100	125	93
19	22	16
23	19	10

It will be noticed that in three of the four towns the number of stillbirths exceeds the total number of infant deaths from the first to the twelfth month of life. In one town the stillbirths exceed the deaths under the first month, and are nearly 80 per cent as great as the total infant deaths during the whole first year. In the instance of this same town it is worth noting that the deaths under one month of age are almost twice as many as the deaths of the next eleven months.

Study Course for Nurses in Maternal and Infant Hygiene. — The Massachusetts Department of Public Health is holding a three-day study course for nurses in maternal and infant hygiene. This course has already been given in Boston, Springfield and Lowell, and will be repeated in Worcester, Pittsfield, New Bedford, Fall River, Greenfield and probably Hyannis.

The function of a State department is largely educational. In a program for protecting maternity and infancy the educational plan is a most essential phase of the work. The object of the course is to present to the nurses the best in methods and procedure in maternal and infant hygiene, with the opportunity for free discussion on subjects presented.

Leaders in the medical and nursing professions and specialists in mouth hygiene and nutrition are contributing their technical knowledge. Red Cross and other field workers are contributing their experience in community activities. But without the nurses, who make the contact with the doctors and who have the confidence of the mothers, the program cannot be carried out. The Department is counting on the nurses to get the patients to the doctor early, and to exert their influence for the use of best methods. The responsibility of education is yours, Nurses — Carry on!

Massachusetts Health Conference. — The air is filled with lamentation, not from Rachel weeping for her children, but for health workers with a new committee meeting to attend. As the Ancient Mariner might have said, meetings, meetings everywhere nor any time to think!

Hope, however, dawns in the breasts of Massachusetts health workers. A movement is on foot to consolidate meetings, some of them, at any rate. The Massachusetts Tuberculosis League has taken the lead and has invited fourteen State-wide organizations to co-operate in a health conference to be held in Springfield April 26 to 28. The plan will not, of course, reach full fruition this year, since some of the organizations interested have already had their chief meeting of the year. We may nevertheless expect to see, this year, representatives of many organizations participating in this joint conference, getting better acquainted with each other's work. It may be that through this conference we may come really to appreciate the fact that the underlying principles of public health work are simple when not confused by duplication of effort.

Now is the time for all good men — and women — to come to the aid of public health and to attend the Massachusetts Health Conference at Springfield April 26 to 28.

The Boston Health League. — The report of the Executive Secretary, Mr. Horace Morison of the Boston Health League, presented at the annual meeting Feb. 14, 1923, recalls the fact that the Health League is now a little over two and one-half years old. The League has had a budget, however, only since April 1, 1921, when funds were provided through the Boston Metropolitan Chapter of the American Red Cross. These funds were sufficient to finance a program of approximately two years in length.

For years many of those familiar with health work in Boston realized that excellent as the work undoubtedly was which was being done by the various agencies, there was a regrettable lack of co-ordination and even of co-operation (we are not going to apologize for these words, overworked though they may be). It is said that to understand all is to pardon all. Certain it is that without understanding there is little co-operation. The Boston Health League has for its watchword "The maximum of service through the close co-operation and co-ordination of the work of the existing public health agencies in the city of Boston."

Twenty-seven constituent agencies at present make up the Boston Health

League. A district of the city — East Boston — is the center of the League's activities. The district has been studied as a whole and with reference to special phases of health, such as tuberculosis, mental health, child health, and so forth. A handbook of East Boston social agencies has been prepared, and an instructive analysis was made of home and dispensary visits with a view to discovering overlapping work. Now a building has been obtained which serves as a center for the health agencies working in East Boston. In the reasonably near future it is expected that the city itself will erect a health center in East Boston. When that time comes there will be the group now under the roof of the Boston Health League to serve as a nucleus for the new municipal center. It should be said that the municipal health department is now a member of the Health League, and that the commissioner of health of Boston is the League's president.

Much more could be said concerning the activities of the League, but this will suffice as an indication of its work. Its progress will be carefully and hopefully watched by all who want to see the greatest amount of health work done with the least amount of lost motion.

High Lights of the Tuberculosis Report. — One of the concluding acts of the Legislature of 1922 was the passage of an order most comprehensive in scope directing the State Department of Public Health to investigate all phases of the tuberculosis situation and to report its opinion as to the future general policy which should be adopted by the Commonwealth as to the control of existing machinery for the prevention and control of tuberculosis, methods of treatment and distribution of the cost of equipment and facilities for this purpose.

Under this order a detailed, painstaking study has been made by the Department, taking as its basis the magnitude of tuberculosis as a public health hazard and the history of the anti-tuberculosis movement in this State up to the present time, the gradual growth, development, and, to some extent, the cost, of the present system for the prevention and control of tuberculosis by means of hospitals, dispensaries, educational measures, etc., and the underlying social and economic factors which have shaped the course of the present system.

Six possible policies which could be followed have been stated and their advantages and disadvantages outlined. Of them the Department has adopted the one which to it seems to offer the most general State-wide utilization of existing hospital facilities without imposing any undue financial burden upon any of the communities interested, — the one which recognizes, on the one hand, the urgent need for a central governing unit to establish and develop the State program for the control of tuberculosis to meet the requirements of a slowly changing situation, and which, on the other hand, establishes the basic principle of community responsibility for and assures community interest in the care and treatment of persons suffering from tuberculosis.

SYNOPSIS OF PRINCIPAL POINTS IN RECOMMENDED PLAN. — 1. The plan proposes the establishment of seven tuberculosis hospital districts, as follows: —

District No. 1. — Hampshire, Berkshire, Hampden and Franklin counties, including the city of Springfield. It is planned to sell to this district the Westfield State Sanatorium, now operated by this Department for the care and treatment of children exclusively, and the suggestion is made that the present Hampshire County Sanatorium plant be used possibly as a preventorium.

District No. 2. — Middlesex and Worcester counties, including municipalities in Suffolk County outside of Boston. It is planned to sell to this district the North Reading State Sanatorium, now operated by this Department.

District No. 3. — Essex County. Hospital facilities to be furnished by the present Essex Sanatorium.

District No. 4. — Norfolk County. Hospital facilities to be furnished by the present Norfolk County Hospital.

District No. 5. — Bristol County. Hospital facilities to be furnished by the present Bristol County Tuberculosis Hospital.

District No. 6. — Plymouth County. Hospital facilities to be furnished by the present Plymouth County Hospital.

District No. 7. — Barnstable, Dukes and Nantucket counties. Hospital facilities to be furnished by the present Pocasset Sanatorium.

2. It is recommended that the Rutland State Sanatorium and the Lakeville State Sanatorium be retained by the Commonwealth of Massachusetts, the former to be devoted to the care of children suffering from tuberculosis, irrespective of legal settlement, and the latter to be used exclusively for cases of non-pulmonary tuberculosis.

3. The establishment of a much-needed Central State Governing Board to consist of the chairmen of the Board of Trustees of the District Hospitals, with a representative of the Department of Public Health, ex officio, as chairman of this Board. It will be the duty of this Board to consider and promote uniformity and standards of hospital practice, to approve budgets, to arrange for a joint purchasing system, to secure economy in administration, and to co-operate with the Department of Public Health in conducting consultation and examination clinics and demonstrations from time to time throughout the State.

4. The establishment of a medical advisory board for the respective hospital districts, to be made up of a member of the Department of Public Health and the superintendents of the district tuberculosis hospitals.

5. Amending of present law to require that only cities having a population of 100,000 or over, with the exception of Springfield, be required to maintain tuberculosis hospitals, all other municipalities to become a part of the tuberculosis hospital district.

6. Amending of the present dispensary law so as to require the maintenance of dispensaries only in those cities with a population of 50,000 or over, the maintenance of such dispensaries in smaller communities to be left to the discretion of the Department of Public Health.

7. The carrying out of efforts so directed as to result in bringing up to the most approved present-day standards the methods of treatment and equipment in those hospitals for the care of tuberculosis where such improvement is required. The investigation brought out many instances where such improvement in equipment and methods is much needed.

8. Repeal of the legislation providing for the payment of subsidy to cities and towns for patients sent to tuberculosis hospitals.

The report has been submitted. It now awaits the pleasure of the Legislature. There has been much discussion of late years concerning the tuberculosis situation. In perhaps no other public health problem has there been so much genuine interest and consistent effort effectively applied to supplement the program of those officially charged with the responsibility of instituting or carrying out public health measures for the control of tuberculosis. The death rate from tuberculosis has been steadily declining, and the record of the past few years is especially noteworthy. There has been evident here and there a tendency to deny that the preventive and control measures against tuberculosis instituted by official and voluntary health organizations have had much if anything to do with this result, but it must be both obvious and unquestionable to any impartial observer that much of the credit for this situation must be given to the present system of handling tuberculosis. Much still remains to be done in order that the work already so well started may be most effectively, most humanely and most economically carried out. Therefore, the Department, following its survey of the tuberculosis situation, has submitted to the Legislature the recommendations above outlined. — F. L. McC.

NOTICES.

Prenatal and Postnatal Letters.

The Massachusetts Department of Public Health sends out a series of 33 prenatal and postnatal letters, to cover each month of pregnancy and two years of infant life. The prenatal letters are printed in Italian as well as English.

This service is not intended in any way to take the place of the doctor, but rather to supplement his advice and to save his time by giving non-technical information of value to the prospective mother. A sample set of the letters will be sent to any doctor who wishes to see them before sending in a patient's name.

Ratology.

Owing to the increased interest in rat elimination shown by the inquiries we are receiving on the subject, we announce that we shall be glad to give free advice on rat riddance to any one who may request.

All communications must be plainly addressed to our ratologist, Mrs. Albert T. Leatherbee, and a stamped return envelope enclosed. — The Women's Municipal League of Boston.

Toothbrush Box.

It is a small school in the country. All of the children have to come quite a distance, so they bring their lunches in nice little baskets. Teacher brings her lunch, too. She eats with the children, and while doing so tells them about the various foods which are good for boys and girls, and teaches them how to chew and the value of mastication. Then off they scamper! Yes, teacher is very much interested in all phases of public health work, for she wants her pupils to be strong and healthy. She teaches them that each should have a toothbrush of his own, and that it should be used every morning and every night (of course they cannot use it at noon, for they are at school). Teacher hopes they do as they are taught, but she fears that there are many "family toothbrushes," and that even that is used very seldom — fortunately.

Would it not be better to have some plan whereby teacher could be certain that the teeth are brushed at least once a day, and that they are then brushed thoroughly?

With that in view we have made a model of a box to be used in the rural schools to hold the individual toothbrushes and cups, each carefully marked. The box can be easily made by any of the older boys, and they will enjoy doing so.

Then, instead of scampering off after eating lunch, leaving particles of food between the teeth which will decay them, every one will have a toothbrush drill, with real water and real brushes, and a toothbrush captain to lead. Fun, isn't it? And it will do much to help the children's health.

Teachers! Nurses! If you wish the model box sent to you in order that you may copy it, write to the Division of Hygiene, Massachusetts Department of Public Health, State House. — E. C. S.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the month of December, 1922, samples were collected in 37 cities and towns.

There were 257 samples of milk examined, of which 61 were below standard, 7 samples had the cream removed, and 28 samples contained added water.

There were 341 samples of food examined, of which 99 were adulterated. These consisted of 5 samples of cider which contained benzoic acid; 65 samples of eggs, 13 samples of which were sold as fresh eggs, but were not fresh; 51 samples were cold-storage eggs not properly labeled; and 1 sample was decomposed; 22 samples of sausage, 6 samples of which had the casings colored; 13 samples contained starch in excess of 2 per cent; and 3 samples were colored and also contained starch in excess of 2 per cent; 1 sample of nuts, 19 per cent of which were bad; 1 sample of scallops which contained added water; and 5 samples of apple waste vinegar sold as apple vinegar.

There were 70 samples of drugs examined, of which 8 were adulterated. These consisted of 1 sample of camphorated oil; 2 samples of spirit of camphor; and 5 samples of spirit of nitrous ether, all of which did not conform to the U. S. P. requirements.

The police departments submitted 489 samples of liquor for examination, 456 of which were above 2.75 per cent in alcohol. The police departments also submitted 10 samples of poisons for examination, 8 of which were morphine, and 2 samples were cocaine.

One sample of coal was examined for the Concord Reformatory.

There were 18 hearings held, and 2 warnings issued, pertaining to violations of the food and drug laws.

There were 34 convictions for violations of the law, $360 in fines being imposed.

George Hannah of Lawrence; Peter Midouhas of Haverhill, 2 cases, 2 counts on one of the cases; Kazimirz Godek, John Moskal, Waladysla Nowak, 2 cases each, and Joseph Riley, Michael Rzeszotarski, and John Zasadzinski, all of Holyoke, were convicted for violations of the food laws. Peter Midouhas of Haverhill appealed one of his cases.

Fred Corcoran, John Lorigan, Michael Mroz, Abraham Novick, Vailois Pierakos, and Joseph Silva, all of Lowell; Clarence E. Hubbard and Richard F. Williams of Westfield; Angelo Piccio and Arthur Filion of Mansfield; and Elias Cory and Alfonzo Sandra of Lawrence were all convicted for violations of the cold-storage laws.

Arthur H. Mosher and Henry J. Mosher of Springfield and M. O'Keefe, Incorporated, of Norwood were all convicted for misbranding. Henry J. Mosher of Springfield appealed his case.

Charles H. Brown and Nathan Cooper of Norwood and Arthur Filion of Mansfield were all convicted for false advertising.

Andrew Scibelli of Agawam, 2 cases; Harry Baskin of Adams; and Abraham Krugman of West Springfield were all convicted for violations of the slaughtering laws.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Milk which contained added water was produced as follows: 14 samples, produced by Manuel Borgess of Westport, and 5 samples, produced by Peter Pelletier of Acushnet.

Six samples of milk which had the cream removed were produced by John Sullivan of Lexington.

Cider which contained benzoic acid was obtained as follows: 3 samples, from Myer Kaplan of Pittsfield; and 1 sample, from Peter Midouhas of Haverhill.

Sausage which contained coloring matter was manufactured as follows: 2 samples, from Phillip Epstein of Boston; and 1 sample each, from Colonial Provision Company, and Boston Sausage & Provision Company, both of Boston; and Eastern Provision Company of Fall River.

Sausage which contained starch in excess of 2 per cent was obtained as follows: 1 sample each, from W. A. Wilkinson and Snigorski & Meisser, both of Lawrence; Eastern Provision Company of Fall River; and P. W. Rounseville of Boston.

Three samples of sausage which contained starch in excess of 2 per cent and also contained coloring matter were obtained from Eastern Provision Company of Fall River.

There were two confiscations, consisting of 30 pounds of decomposed geese and 18,185 pounds of decomposed ciscoes.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of November, 1922: 441,510 dozens of case eggs, 154,061 pounds of broken-out eggs, 2,104,675 pounds of butter, 1,266,490 pounds of poultry, 3,344,941 pounds of fresh meat and fresh meat products, and 842,372 pounds of fresh food fish.

There was on hand Dec. 1, 1922, 6,345,450 dozens of case eggs, 1,341,895 pounds of broken-out eggs, 9,296,481 pounds of butter, 2,534,047 pounds of poultry, 5,839,980½ pounds of fresh meat and fresh meat products, and 10,676,305 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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The Berkshire District	Leland M. French, M.D., Pittsfield.

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EUGENE R. KELLEY, M.D., Commissioner

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FOREWORD.

By Eugene R. Kelley, M.D., Commissioner of Public Health.

THE medical practitioner, unless specially versed in biologic therapy, finds himself somewhat bewildered when he seeks reliable information concerning the use of serums and vaccines for the prevention and treatment of infectious diseases. In his search he is confronted on the one hand with the scientific literature, often scattered through many journals, sometimes abstruse, usually conservative, and at times lacking in practical details; or, on the other hand, either with the enthusiastic, or pessimistic reports of empiricists; or with the highly optimistic, convincing and dogmatic claims of some manufacturers.

Time has shown that certain serums and vaccines, properly prepared and intelligently administered, constitute effective weapons in the medical man's armamentarium against certain diseases of parasitic origin; and time has also shown that many of the vaunted claims as to the applicability and efficacy of other biologic products have no sound basis of fact, while their use has led not only to disappointment, but, in some minds, to general skepticism or an actual prejudice against products of real value.

Rational biologic prophylaxis fills in many wide and important gaps in our resources against disease, which cannot be covered even by the most rigid exercise of modern sanitary measures; and in the treatment of many infections rational biologic therapy holds a valuable and enduring place which cannot be supplanted by any drug therapy. As diseases of now unknown etiology come more fully into the ken of man, further efficacious methods of biologic treatment will undoubtedly be devised. True progress will come only from the work of highly trained laboratory specialists and highly trained clinicians and until any new form of serum or vaccine treatment has received their endorsement, its adoption should be attended with the utmost conservatism.

With the hope that through authoritative articles by authors having wide experience in their special fields the practicing physician may find first hand present day knowledge of the proper application and use of biologic products, this special number of the Commonhealth has been prepared, and is offered to the medical profession of the State.

GENERAL THEORETICAL CONSIDERATIONS OF VACCINES AND SERUMS.

By Benjamin White, Ph.D., Director, Division of Biologic Laboratories.

THE use of vaccines and serums for the prevention and treatment of infectious diseases is based on Nature's method of conferring upon those who recover from certain diseases a lasting protection against a subsequent attack of the same disease.

In the prevention of infection the aim is to introduce into the body those constituents of the disease-inciting virus (the antigens) which stimulate the body cells to the production of protective substances, without subjecting the body to the harmful action of the disease itself, or, in other words, to cause the body to develop its own resistance against infection. This method, generally speaking, is applicable when the body is free from the morbid processes against which protection is desired and when the need is not an immediate one. This method — that of active immunization — possesses the advantage of producing a more or less enduring immunity; but the disadvantage, that time is required for its successful operation.

When exposure to infection has been recent, is present or likely, the need for haste is too urgent to permit the practice of active immunization. Then the conditions are considered as being similar to those present in active disease, and the method to be applied is the same as that devised for the treatment of infectious diseases.

Here the aim is to confer upon the infected body a ready-made resistance against the further development, or the ravages of the existing disease. This is accomplished by injecting into the sick body the blood serum from an animal, rich in those protective substances which have been manufactured in the body of the sound animal as a result of active immunization. This method — that of passive immunization — has the advantage of affording immediate protection against developing or active disease and of carrying the invalid through the danger zone of the infection. It has the disadvantage, for preventive purposes, of imparting an immunity of short duration and, therefore, the treatment must be repeated, if the exposure or attack continue or recur.

I. Active Immunization.

The virus of an infectious disease, whether it be the inciting germ itself or its poison, if introduced into the body, would under usual conditions, produce the disease or some of its harmful or destructive manifestations. It is the practice, therefore, to modify the virus so that it is freed from invasive or other harmful characters, but still retains its ability to call forth the production of protective or immune substances. This end may be accomplished in a variety of ways, depending upon the nature of the disease and the character of the infecting organism.

The first method discovered for altering the virulence of a virus for man was the device of propagating the virus in a series of animals of another species, so that there developed a modified form of the disease, but one which no longer could be transmitted in its original form to man. By inoculating a susceptible animal, such as the calf, with infectious material (containing the unknown virus of smallpox) obtained from a human smallpox pustule, and then successively inoculating a series of calves with material from the eruption developing on the skin of the preceding animal, the smallpox virus becomes attenuated in its virulence. When introduced into the skin of man, it is no longer capable of producing smallpox, but sets up a harmless local process which gives rise to a high degree of protection against smallpox infection.

The invasive power or virulence of other germs may be modified in a variety of ways, being rendered harmless yet capable of stimulating the body to an increased resistance against various diseases. The virulence of the virus of rabies, as an example of another type of vaccine, is first raised by successive passages through rabbits, to a fixed and constant power, then lowered to varying degrees by shorter or longer exposure to desiccation. Still other methods consist, as in the case of antityphoid vaccine, in subjecting the bacteria to the least heat exposure necessary to kill them without appreciably modifying their immunizing powers. For certain diseases, as diphtheria, not the bacteria but their metabolic products, such as the toxins, are used as the vaccine. Here toxin is rendered harmless by partial neutralization with antitoxin, while its antigenic or immunizing powers are still retained. The product is the widely used toxin-antitoxin mixture. The majority of tuberculins fall within this class. Pollen extracts and solutions of food proteins represent still another class of antigens or vaccines, which when introduced into the body call forth the production of protective substances transforming a condition of hypersensitiveness into one of immunity.

Vaccines, therefore, comprise (1) the viruses of various diseases deprived of their invasive or disease-producing powers either by animal passage or by physical or chemical agents, yet retaining their antigenic character or immunizing ability; (2) the products of viruses, made harmless but still effective in increasing specific resistance to infection and disease; and (3) protein solutions acting as desensitizing or immunizing agents. Vaccines, accordingly, are the agents of active immunization; they are employed principally for the prevention of disease, for forestalling the development of an infection (as in rabies); for the treatment of localized infections (staphylococcus vaccine); and for the production of curative antitoxic and antibacterial serums in animals.

II. Passive Immunization.

Serums are of two kinds — antitoxic and antibacterial. (1) Antitoxic serums are produced by actively immunizing an animal — usually the horse — against the toxin or poison of disease-producing bacteria; they contain antibodies (antitoxins) which combine with and neutralize their homologous toxins. The method, in its principal and essential details, is the same for all toxins, and yields curative serums for diphtheria, tetanus, gas gangrene and botulism. The organisms of these diseases are grown on a suitable liquid medium — usually a nutrient beef or veal broth enriched with peptone — then killed with phenol, filtered out and the bacteria-free filtrate containing the toxin is used for the horse injections. In the case of diphtheria, as an example, this filtrate contains the specific poison or toxin of the diphtheria bacillus, which in clinical diphtheria is responsible for the constitutional symptoms so characteristic of this disease. This toxin is an exceedingly potent substance and so little of these filtrates as two one-thousandths of a cubic centimeter, or even less, is fatal to a one-half pound guinea pig (the chosen test animal). The horse kilo for kilo, is even more susceptible to this poison, but by injecting at first a small and harmless amount of the toxin under the skin of the animal and frequently repeating the injection of slowly increasing doses, a high degree of tolerance is produced. This tolerance is due to the development by the body cells of the animal of a toxin-neutralizing substance or antitoxin, and this antitoxin is found to be free in the circulating blood. As the immunizing injections of the toxin progress according to an arithmetical progression, the increase in the antitoxin content of the blood follows a geometrical progression with the result that a surplus of antitoxin is always present. By bleeding the animal and removing the fluid part of the blood from the clot, the clear, sterile serum is obtained rich in antitoxin. This serum, injected into the body of the diphtheria patient, into a muscle or vein, combines with and neutralizes the toxin secreted into the circulation by the diphtheria bacilli localized in the nose or throat. The antitoxin is usually freed from other non-antitoxic serum proteins and concentrated by a chemical process. If the antitoxin is administered soon enough and in sufficient quantity, the diphtheria poison being produced there by the diphtheria bacilli is neutralized and rendered innocuous. It must be remembered, however, that the immunity conferred on the patient is of short duration and cannot be depended upon to persist for more than two to six weeks and that further injections shortly following one another give a protection for even a shorter period. This period, nevertheless, is sufficiently long to shield a person against infection from recent exposure and to carry a diphtheria patient through the danger zone of the disease.

In tetanus, owing to the virulence of the toxin produced by the tetanus bacillus and its quick and firm affinity for nervous tissue, the antitoxin is less efficacious in the more severe cases, but is of the greatest service in preventing the development of the disease when administered soon after the infection has taken place and before the onset of symptoms.

Antitoxic serums, therefore, are the blood serums of animals which have been actively immunized against toxins and contain antibodies which neutralize the poison of the specific kind of bacteria responsible for the disease against which the prevention or curative treatment is directed. They confer a brief immunity —

called passive immunity — and serve both to prevent an infection from developing and to cure existing disease.

(2) Antibacterial serums are produced by actively immunizing animals — again usually horses — by injecting into their blood stream the various kinds of bacteria, either living or killed. In response to these injections the tissues of the animal make and throw out into the circulating blood various immune bodies — antibodies which may stimulate phagocytosis, which may agglutinate or dissolve their corresponding bacteria or fix complement in the presence of their antigenic constituents; or serve to protect a susceptible animal against an otherwise fatal infection. Such are the serums prepared for the treatment of epidemic cerebrospinal meningitis and pneumococcus lobar pneumonia. The content of antibodies in the serum can be measured and the serum standardized for treatment. Here again the most favorable results attend the early and possibly repeated administration of the serum and here, also, the immunity produced, being of the passive type, is fleeting. A nice clinical judgment is a requisite for the successful employment of antibacterial serums.

Fortunately these immunologic principles can be turned to account in the diagnosis of bacterial infections and even in measuring susceptibility to infection. Tuberculin, applied to the skin (Pirquet test) or mucous membranes (ophthalmic test) or injected into the skin (Mantoux intradermic test) or under the skin, by the local inflammatory or general constitutional reaction it causes, will reveal the presence of a tuberculous lesion somewhere in the body. Similarly, mallein may be used for the diagnosis of glanders. Extracts of pollens and solutions of food proteins, by the skin reactions which they set up, will indicate hypersensitiveness on the part of the patient to this or that pollen or food protein. The important Schick test for the determination of susceptibility to diphtheria is based on the irritant power of diphtheria toxin, which is no longer manifested if antitoxin be present in the tissues of the subject.

The power of immune serums to cause homologous bacteria to lose their motility and to collect in clumps — to agglutinate them — may be utilized for the bacteriologic diagnosis of the organisms isolated from the blood, spinal fluid, sputum, urine or feces of suspected cases of typhoid fever, bacillary dysentery, pneumonia and meningitis for example, as well as for the type determination of pneumococci and meningococci. The property possessed by similar immune serums to precipitate their corresponding proteins from solutions, is employed for establishing the identity of various proteins, particularly in forensic medicine, for determining the origin of blood specimens.

In the Bordet-Gengou phenomenon, in which the affinity of the immune body for complement in the presence of its specific antigen is taken advantage of, a reverse application is made and here by means of bacteria or their extracts the presence of immune bodies can be detected in the blood and a clinical diagnosis pronounced or supported. This is the underlying principle of the Wassermann reaction for syphilis and of the complement fixation tests for gonorrhœa and glanders.

Thus it may be seen that the fruits of immunologic study are biologic methods and biologic agents, such as vaccines and antitoxic and antibacterial serums, which are of great service to man in the diagnosis, prevention and treatment of infectious diseases. Such application of the more important biologic agents is shown in the following table:

Biologic Products for the Diagnosis, Prevention and Treatment of Communicable Diseases and Certain Allergic Conditions.

Name of Disease.	For Diagnosis.	For Prevention.	For Treatment.
Smallpox	– –	Vaccine Virus	– –
Rabies	– –	Antirabic Vaccine[1]	– –
Bubonic Plague	– –	Bacterial Vaccine	Anti-plague Serum.
Cholera	– –	Bacterial Vaccine	– –
Typhoid Fever Paratyphoid Fevers	Agglutinating Serums for bacteriologic Diagnosis.	Bacterial Vaccine	– –
Whooping Cough	– –	Bacterial Vaccine[2]	Bacterial Vaccine.[2]
Tuberculosis	Tuberculin "O. T." for Pirquet or Mantoux Tests.	– –	Tuberculins "O. T.," "B. E.," "B. F."
Hay Fever	Pollen Proteins[3]	Pollen Proteins	Pollen Proteins.
Food Idiosyncrasies	Food Proteins[3]	Food Proteins	Food Proteins.
Tetanus	– –	Tetanus Antitoxin	Tetanus Antitoxin.
Diphtheria	Diphtheria Toxin for Schick Test.[4]	Diphtheria Toxin-Antitoxin. Diphtheria Antitoxin	Diphtheria Antitoxin.
Gas Gangrene	– –	Gas Gangrene Antitoxin.	Gas Gangrene Antitoxin.
Botulism	– –	– –	Botulinus Antitoxin.[5]
Bacillary Dysentery	Agglutinating Serums for bacteriologic Diagnosis.	– –	Antidysenteric Serum.
Anthrax	– –	– –	Anti-Anthrax Serum. Normal Bovine Serum.
Lobar Pneumonia, Type I	Agglutinating Serums for Bact. Diag., Types I, II III	Bacterial Vaccine[6]	Antipneumococcic Serum.
Meningococcus Meningitis	Agglutinating Serums for Group Determination.	– –	Antimeningococcic Serum.
Scarlet Fever	– –	– –	Convalescent Serum.
Anterior Poliomyelitis	– –	– –	Convalescent Serum.

[1] For use after infection has taken place and before development of disease.
[2] Still of unproved value.
[3] For determination of specific hypersensitiveness.
[4] For determination of susceptibility.
[5] Not yet of therapeutic value.
[6] Still experimental.

VACCINATION AGAINST SMALLPOX.[1]

By Milton J. Rosenau, M.D., Professor of Preventive Medicine and Hygiene, Harvard Medical School.

VACCINATION was the first specific prophylactic measure given to man. It produces an active immunity to smallpox. We are indebted for this discovery to Edward Jenner, who demonstrated one hundred and twenty-five years ago that cowpox protects against smallpox.

Vaccination consists of introducing the active principle of cowpox into the skin in order to induce *vaccinia* and prevent *variola*. Under no circumstances should the virus be placed under the skin. Although vaccination involves only a superficial scratch into the skin, nevertheless this little operation should be done with the usual aseptic precautions attending any minor surgical operation.

There are several methods of performing vaccination. The method of scarification formerly so popular should never be used. It produces an unnecessary wound and irritation which serve no useful purpose and may attract complications. The method of scarification is forbidden by law in some countries. The best method of vaccination is the scratch method.

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[1] This article is condensed from the chapter on Smallpox and Vaccination in Rosenau's "Preventive Medicine and Hygiene" to which the reader is referred for a more detailed description.

THE VIRUS.

The vaccine virus is propagated by the State Department of Public Health at the Antitoxin and Vaccine Laboratory at Forest Hills. It is carefully tested for potency and purity in accordance with federal requirements before it is distributed. To make assurance doubly sure duplicate or check tests are done on every lot by two separate and independent bacteriologists and frequently various lots are submitted to the U. S. Hygienic Laboratory for official tests. Furthermore, the virus is purified with phenolated glycerin — both the phenol and glycerin acting as germicides.

The vaccine virus may be obtained from local boards of health, from the city distributing stations in Boston and from the Department of Public Health, State House, Boston. A list of these distributing stations with their addresses will be found on page 75.

It is essential that physicians observe certain facts about the care and use of vaccine virus. Most important of all, perhaps, it must be kept *cold* from the time it is obtained until the moment it is used. If vaccine virus is carried in the pocket, the warmth of the body may be sufficient to decrease its potency materially in a short time. Physicians are strongly advised to read the circular of directions that accompanies each package of vaccine virus. This circular has been carefully drawn up and may be taken as a standard.

It is important for vaccinators to keep a written memorandum of the lot number of the vaccine virus used in each case. The lot number will be found stamped on each package.

While vaccine virus may take after the expiration date stamped upon the package, it is much better always to use a fresh supply. The most typical takes are obtained with fresh active virus, and this also gives the best immunity. While no harm is done, it is only a waste of time to vaccinate with old virus that has lost its potency.

THE METHOD OF VACCINATION.

The Preparation of the Skin.

The skin at the site of the operation must be surgically clean, but need not necessarily be treated with germicides. If such are used, they must be carefully washed away in order not to destroy the activity of the virus. A thorough preliminary scrubbing with soap and water is necessary for a dirty skin. Usually it is sufficient to wash the skin with soap and warm water; follow with ether, acetone or alcohol. The ether, acetone or alcohol should be permitted to evaporate before the vaccine is applied. In general, the less the skin is irritated, the less the danger of complications. Do not use medicated (denatured) alcohol, iodine or other strong germicides because they are apt to weaken or kill the vaccine virus and thus prevent successful "takes."

The best and simplest instrument for the purpose of vaccination is a needle.

Point of Election.

The outer surface of the arm, at about the insertion of the deltoid, is the most convenient for the operator and the patient. The left arm should be selected in right-handed persons. This is the original site chosen by Jenner and is less liable to annoying glandular complications than other points. It has other advantages. The skin here is easily made taut by grasping the under side of the arm. Inspection of the course of the eruption is also facilitated.

Vaccination will "take" upon any part of the skin or mucous membrane: the lips and even the conjunctiva are susceptible. With the scratch method of vaccination the resulting pock marks are scarcely visible. The old method of vaccination by scarification left an unnecessary and often unsightly scar. The vaccination pock should not be regarded as a disfigurement. To the sanitarian a typical vaccine mark is a sanitary dimple.

Number and Length of the Scratches.

This has an important bearing upon the probability of the take as well as the protection. It is not wise to depend upon one scratch. There is a definite relation between the number of vesicles and the degree and length of the immunity. Ordinarily, two scratches about an inch long and an inch apart are advisable, but in case of exposure to smallpox, three or four such scratches should be made. The Local Government Board of England directs that four vesicles should be produced and that the total area of the vesicle formation shall not be less than one-half a square inch.

Technic.

Asepsis is the watch word. Surgical cleanliness is just as necessary in this as in any other operation. The skin at the point of election should be prepared in accordance with the above directions. The needle may be sterilized by flaming just before use. The operation of vaccination is then performed as follows:

Place one drop of the vaccine virus on the prepared skin and another drop about an inch away. Then bathe the point of the needle in the first drop of vaccine virus and make a scratch about an inch long. With the side of the needle gently rub the vaccine virus into the scratch. Do not grind it in. Next, make another scratch from the second drop of vaccine virus, about an inch long and parallel to the first. Again gently rub the virus into the scratch. It is not necessary nor desirable to draw blood. Permit the virus to dry a few minutes. It will not dry completely on account of the glycerin present.

No dressing is necessary, but several layers of sterile gauze held in place by adhesive plaster do no special harm. Such dressings should be renewed daily. Pads, plasters and shields of any sort are unwise because by retaining heat and moisture they cause softening and breaking down; in other words, they act as a poultice. The best dressing is the unbroken skin. There is no danger of contamination as long as the vesicle remains whole. The crust or scab which forms naturally as the pustule drys affords a good protection. Whatever arrangement is used, it should permit frequent inspection and should avoid undue heat, softening or irritation. If the pustule breaks or the crust comes off prematurely, or if the take shows indications of a secondary infection that has accidentally gained entrance, then it should be treated in accordance with modern surgical practice.

Bathing need not be omitted nor any of the ordinary occupations, but care should be taken not to soften the crust with water or sweat. Unnecessary use of the arm must be guarded against as this increases the congestion, inflammation and chances of infection.

INTERPRETATION OF RESULTS.

The take must be typical and the clinical course characteristic, otherwise we have no assurance that the individual is protected against smallpox. The beneficial effects of vaccination are most pronounced in those in whom the vaccination has run its most typical and perfect course. No confidence should be placed in doubtful or atypical takes.

Primary Vaccination.

The best indices of a successful primary take are: (1) The course of the eruption; (2) the general symptoms; and (3) the scar. After an incubation period of three days, the eruption appears at the site of the vaccination. It is at first papular. The papule gradually changes into a vesicle. The vesicle is at first clear and pearl-like. Umbilication develops as the vesicle enlarges. A deep red and swollen areola surrounds the vesicle and grows wider as the lesion advances. This gives the picture of "the pearl upon the rose-leaf" which constitutes the true Jennerian vesicle. By the seventh day the vesicle is full size, round or oval, flat on top, umbilicated and contents clear. It is multilocular.[1] By the eighth day the vesicle turns yellowish and the pustule develops. Meanwhile the axillary glands become enlarged and tender. About the tenth day the areola begins to fade and the swelling subsides. By the eleventh or twelfth day the pustule dries leaving a brown wrinkled scab which finally drops off. It should never be removed as it forms a good protective dressing. The foveated scars or pocks are first red and finally turn white.

The general symptoms vary. They are apt to be very mild in young children. At most, they consist of a slight febrile reaction. The temperature may go to 38° or 38.5° C, as the vesicle ripens. The febrile reaction bears no special relation to the size and number of the vesicles or to the areola.

Secondary Vaccination.

The clinical picture of second vaccinations may be quite different from the typical take following a primary vaccination. These altered reactions were known in the time of Jenner, but were lost sight of until recently rediscovered and their significance realized from studies in anaphylaxis.

Secondary vaccinations, or revaccinations, may be divided into three groups: (1) They may run an unaltered course resembling primary takes in all respects, showing that immunity to cowpox has disappeared. (2) They may run a somewhat more rapid course, in which the period of incubation is shortened and in which the height of the eruption occurs about the fifth or sixth day. This is known as the *accelerated* reaction. (3) They may run a very much shorter, milder and rapid course. The eruption in this case is only a small papule which does not develop into a vesicle and very slowly disappears. The period of incubation is about twenty-four hours. This is known as the *immediate* reaction. Every gradation occurs between an immediate reaction and a primary take.

Both the immediate and accelerated reactions are indications of immunity and therefore should be considered successful takes. *Failure to take does not mean immunity.* It may be due to a vaccine virus that is old, or heated or rendered impotent through contact with germicides. The technique may have been imperfect. There are numerous reasons for negative takes. When this happens, the vaccination should be repeated. Persons are sometimes vaccinated a number of times before a take is obtained. One of my cases gave a history of having been unsuccessfully vaccinated five times: the sixth attempt produced a typical primary take with twenty-one vesicles.

Vaccination should be performed early in childhood, again at the tenth to twelfth year and also whenever smallpox appears in the community. As a rule two vaccinations are sufficient to protect for life. If direct exposure to smallpox has taken place or is likely, the insertions may be multiplied to three or more on each arm, but the scratches should be at least an inch apart.

VACCINATION CERTIFICATES.

Vaccination certificates should be based upon observation of the course of the take. The site should be inspected at least on the second, seventh and eleventh days after vaccination. Modified reactions in revaccination are to be interpreted as successful takes, but their nature should be recorded as (1) primary, (2) immediate, (3) accelerated reactions.

CLAIMS FOR VACCINATION.

(1) "Duly and efficiently performed it will protect the constitution from subsequent attacks of smallpox as much as that disease itself." (Jenner.)

(2) It protects the individual against smallpox for a period which has not been

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[1] The vesicle of smallpox is also multilocular; that of chickenpox is unilocular.

determined mathematically for the individual, but which averages about seven years.

(3) The protection may be renewed by a second vaccination.

(4) Persons successfully vaccinated on two occasions are usually immune against smallpox for life.

(5) Vaccination and revaccination systematically and generally carried out confer complete protection to a community or a nation. In other words, while the individual protection is not always lasting, the communal protection is absolute.

(6) A person vaccinated once and at a later time contracting smallpox usually has the disease in a less serious form than unvaccinated persons (varioloid). The degree of favorable modification of smallpox is in inverse proportion to the period of time elapsing between the vaccination and the attack of smallpox.

(7) The beneficial effects of vaccination are most pronounced in those in whom the vaccine affection has run its most typical and perfect course.

VACCINATION AGAINST TYPHOID AND PARATYPHOID FEVERS.

By Mark Wyman Richardson, M.D.

IT has been known for many years that an attack of typhoid fever carries with it in most instances immunity from a second infection. How the body acquired this defensive power against subsequent invasion long remained a mystery, and necessarily so until the discovery of the essential cause of the disease, and the experimental study of the reactions induced by this cause in the body fluids and tissues of animals and human beings.

History and Principles involved.

In 1880 Eberth discovered the typhoid bacillus. In the nineties as a result of the painstaking and epoch-making investigations of the Germans under R. Pfeiffer and the French under Bordet upon typhoid and cholera immunity, it early became manifest that animals could be made refractory to typhoid infection, not only by sub-lethal doses of living organisms, but also by harmless doses of dead bacilli. It was found, furthermore, that the serum of such refractory animals would lend passive but temporary immunity to uninoculated animals, and it was expected that a specific therapy similar to that of diphtheria and tetanus would be easily and speedily developed. The principles involved in typhoid immunity, however, proved to be essentially different from those characteristic of diphtheria. In diphtheria a specific soluble poison was neutralized by its corresponding specific antidote or antitoxin. In typhoid the immunity was antibacterial in character, acting upon the bacilli themselves, but not upon their intra-cellular poisons. Moreover, the reactions induced were not simple as in diphtheria, but required the interaction of several diverse elements, such as immune bodies or amboceptors (Ehrlich) and complements or ferments. During the last thirty years many efforts have been made to produce an effective anti-serum for typhoid fever, but no serum has as yet received the universal approval accorded to diphtheria antitoxin.

From the point of view of preventive as distinguished from curative medicine, however, the studies upon typhoid immunity have borne fruit of enormous importance. As has been stated animal experimentation showed early that inoculation with dead organisms conferred a very considerable degree of immunity, and the application of similar principles to the control of human typhoid was clearly indicated.

RESULTS OF ANTI-TYPHOID INOCULATION.

The first extended use of anti-typhoid inoculation among human beings took place in 1896 when Sir A. E. Wright introduced the practice in a tentative way in the British Army. The immediate results, however, were conflicting and rather unfavorable. Later on, the British Military authorities took the matter up again with better results, and Leishman,[1] reporting the English experiences, found that out of 5,473 soldiers who had been inoculated only 21 became subsequently infected. Of these, 2 died. Of 6,610 uninoculated in the same regiment 187 had typhoid, and 26 died.

In 1909 anti-typhoid inoculation was introduced by the writer[2] among the nursing staff of the Massachusetts General Hospital and shortly afterwards the practice was extended to twenty-two other hospitals in this state. In the same year the practice was taken up by the United States Military authorities on a voluntary basis.

In 1912 preventive inoculation was made compulsory in the United States Army. That the results were striking and immediate can be seen by the following table: (Russell)[3]

TABLE 1. — *Vaccination against Typhoid in the United States Army.*

YEAR.	Persons vaccinated.	Cases of Typhoid.
1908, voluntary	–	239
1909, voluntary	830	282
1910, voluntary	16,093	198
1911, voluntary	27,720	90
1912, compulsory	40,057	27
1913, compulsory	25,086	4
1914, compulsory	36,902	7

But the great and deciding test was to come in time of war. In the World War all the armies were more or less thoroughly inoculated against typhoid (and the closely related paratyphoid) infection, — in all instances with convincing results. In this connection Table 2, contrasting as it does the United States' experience in three wars, is most striking:

TABLE 2. — *Relation of Mortality from Typhoid Fever in the United States Army in the World War to that of Previous Wars.*

Deaths from typhoid fever in the World War	213
Deaths that would have occurred if Civil War rates had obtained	51,133
Deaths that would have occurred if Spanish War rates had obtained	68,164

In 1909, as stated above, the writer associated with Spooner, introduced anti-typhoid inoculation among the nurses at the Massachusetts General Hospital. Previous to that time infection among the nurses had been frequent as can be seen by Table 3 compiled by Spooner.[4]

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[1] Leishman. Jour. Royal Army Med. Corps. Feb., 1909.

[2] Richardson. Amer. Jour. Public Hygiene. Aug., 1909.

[3] Russell. Jour. Amer. Med. Assn. 1919, LXXIII, 1863.

[4] Spooner. Amer. Jour. Public Hygiene. Aug., 1909.

TABLE 3. — *Typhoid Fever among Nurses at Massachusetts General Hospital.*

	Cases.		Cases.
1899	2	1904	6
1900	1	1905	2
1901	2	1906	2
1902	3	1907	3
1903	2	1908	4

Since 1909 only one case of typhoid has occurred among the nurses at the Massachusetts General Hospital — in 1915. This case was very mild. Indeed the diagnosis was actually somewhat in doubt. Bacteriological examinations of blood and stools were negative.

Since the War the value of inoculation has been shown in another way. Where local epidemics have occurred the disease has been confined largely to women and children. Resident ex-service men of similar age have escaped, as a result of the immunity produced by their vaccination while in the Army and Navy.

An interesting experience of similar import has been reported from France. A family consisting of parents and seven children lived in very squalid circumstances, practically in one room. The mother acquired typhoid but could not be moved. The rest of the family was inoculated but lived as before. Not one of this family got typhoid fever.

It may be remarked that what is written here concerning typhoid fever holds equally for the paratyphoid fevers and the three types of infection will be considered together.

THE VACCINE.

The material for anti-typhoid and anti-paratyphoid inoculation for use in this state is made and distributed free by the Department of Public Health. The formula adopted by the United States Army, Navy and Public Health Service and by the American Red Cross is followed, and the vaccine prepared contains in each cubic centimeter 1,000 million typhoid bacilli and 750 million paratyphoid A bacilli and 750 million paratyphoid B bacilli which have been killed by exposure to 53°C. for 1 hour and by the addition of 0.4% of cresols.

Dosage (Adults).

First injection 0.5 c.c. ($\frac{1}{2}$ vial) = 1,250 million bacilli.
Second injection 1.0 c.c. (1 vial) = 2,500 million bacilli.
Third injection 1.0 c.c. (1 vial) = 2,500 million bacilli.

Children weighing 50 lbs. should receive one-half the above indicated doses — other children in proportion to their weight. The injections are always to be given subcutaneously in three doses at seven to ten day intervals.

The best point for inoculation, as generally given, is the left upper arm at the insertion of the deltoid. Some operators prefer the back between the scapulæ. The skin should be cleansed and the injection site painted with tincture of iodine. The local reaction is generally small, consisting of some slight swelling, redness and tenderness. In rare instances these signs may be exaggerated but without any bad result, however. The general reaction is also ordinarily mild, consisting at most of fever, headache and backache, lasting from 24 to 36 hours. Rarely there may be nausea, vomiting and diarrhœa. Such reactions are not harmful.

Contraindications against inoculation are few. It should not be done in the presence of acute infection or of kidney disease. Spooner, furthermore, noted that chronic but latent processes such as tuberculosis, chronic arthritis, sub-acute urethritis and furunculosis may become active temporarily after inoculation. There were no permanent bad results, however, and, therefore in the presence of an epidemic such conditions are not contraindications.

Although the results produced by anti-typhoid inoculation in the prevention of typhoid fever have been in the main extraordinary, the practice cannot by any means be considered as one eliminating all necessity for other preventive measures.

During the late World War there occurred a few distinct epidemics among the inoculated troops, the cause of which epidemics in most instances could not be explained. In general these epidemics were supposed to have been caused by "mass infection" with unusually virulent organisms. Public health authorities, therefore, must still, as before, maintain the utmost vigilance as regards carriers, water supplies, milk and other food products.

Certain classes of people are especially urged by Hull[1] to submit to inoculation.

1. All nurses in hospitals while in training.
2. All traveling men and travelers who are visiting small towns and rural districts regularly, and those traveling in foreign countries.
3. All persons planning to go to the country for summer vacation.
4. All contacts with a case of typhoid fever.
5. All persons in a community where typhoid is epidemic or threatens to become epidemic.
6. All persons living in towns with unsafe water supplies.
7. All persons dependent upon shallow wells for water supply.

The immunity produced in response to the injection of vaccine requires an interval of several weeks for its full development. The duration of the immunity is a question insusceptible of exact determination, but the best opinion holds that those who are in frequent danger of exposure should be revaccinated at two year intervals.

With the wonderful results obtained in the prevention of typhoid it was but natural that efforts should be made to utilize anti-typhoid vaccine and other typhoid products in the treatment of patients sick with the disease. A number of years ago the writer was privileged to treat several hundred cases of typhoid fever at the Massachusetts General Hospital with various typhoid preparations; serums, filtrates, residues (Vaughan) and vaccines.[2] As a result of this experience extending over several years, the writer could come to no definite conclusions as to the value of these methods of treatment. In some instances (subcutaneous inoculation with typhoid bouillon filtrates) very definite and sometimes sharp reactions occurred, generally about half an hour after inoculation, consisting of sudden rise of temperature with a chill, followed in eight or ten hours by a marked drop in temperature and with improvement in the clinical picture. This improvement was generally only temporary. Rarely it was permanent. Similar reactions have been noted by others following the intravenous introduction of anti-typhoid vaccines. The meaning of these reactions has not as yet been made clear, but, while it is the impression of the writer that they do no harm, it is still a question as to whether they do any good. All in all the writer feels that the treatment of typhoid fever by vaccines of various types is in the experimental stage and should be left for the present in the hands of large institutions for further investigation.

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[1] Hull. Public Health Reports. 1921, XXVI, 2312.

[2] Richardson. Tr. Mass. Med. Society. 1907.

TREATMENT OF DIPHTHERIA.

By Bernard W. Carey, M.D., Director, Division of Communicable Diseases, State Department of Public Health.

THE treatment of diphtheria in its broader sense lies obviously in its prevention, and the experience of the last decade has shown that this is entirely possible of accomplishment. In the Schick test and immunization with diphtheria toxin-antitoxin mixture, we now have harmless and efficacious procedures for bringing about this much desired end. By means of the Schick test it is possible to determine whether or not a person is susceptible to diphtheria, and those who are found to be susceptible can be rendered insusceptible or immune by means of diphtheria toxin-antitoxin mixture.

Recommendations of the Department.

It is the feeling of this Department that:

(1) Children under six months of age should have a Schick test performed and if they are negative they should be retested between six months and one year of age. If they give a positive reaction they should be immunized with diphtheria toxin-antitoxin mixture.

(2) All children between the ages of six months and six years should be immunized with three injections of diphtheria toxin-antitoxin mixture one week apart without having the Schick test performed on them. The majority of children of this age group are susceptible and therefore the Schick test is not necessary.

(3) All children between six years and eighteen years of age should have the Schick test performed, and if they give a positive Schick test they should receive three injections of diphtheria toxin-antitoxin mixture unless they show a marked combined reaction, when the toxin-antitoxin mixture may be given in divided doses beginning with 0.1 c.c., then 0.2–0.5–1.0–and 1.0 c.c. at weekly intervals.

(4) All individuals above eighteen years of age who are exposed to diphtheria or may come in contact with it should have the Schick test performed and immunized with diphtheria toxin-antitoxin mixture with the same provision, however, as stated in the previous paragraph.

(5) All persons receiving three doses of diphtheria toxin-antitoxin mixture should be retested with the Schick test six months after the last injection and if they should still give a positive Schick test they should receive three more injections of diphtheria toxin-antitoxin mixture and be again retested six months after the last injection.

The time has now come when the application of these recommendations should be universally adopted.

The State Department of Public Health furnishes to all physicians in the Commonwealth outfits for the Schick test and diphtheria toxin-antitoxin mixture free. The family physician should not only urge but persuade the parents in his practice to have their children of the pre-school age immunized and to have their older children tested and immunized if found to be susceptible.

Work on this particular problem is advancing rapidly and an immune group is gradually being built up which at no distant date will reflect itself in the death rate from this disease. Until such time as the majority of our children who are found non-immune are actively immunized by this method, the use of antitoxin for the immediate contact must be employed.

Early Administration of Antitoxin Important.

A recent study of the diphtheria statistics for the year 1922 brings forth the fact that neglect to immunize children in households where a primary case exists has contributed approximately 20 per cent of the cases considered, and that, of the deaths occurring, 5.2 per cent would have been prevented had they been immunized by the use of antitoxin when treatment of the first case was instituted.

Early laboratory and clinical diagnoses are always a prime factor in the proper treatment and a throat sufficiently suspicious to suggest the taking of a culture furnishes the indication for the immediate administration of antitoxin. This appreciated and carried out will do much to lessen both the morbidity and mortality rate. It is of course true that if this procedure is carried out a certain number of patients will receive antitoxin needlessly, but inasmuch as antitoxin properly administered is harmless no damage will be done. The economic waste which occurs fades into relative insignificance when compared with the actual saving of life which we know would result if this practice were generally carried out.

TECHNIQUE OF ANTITOXIN ADMINISTRATION.

It perhaps would be well here to state the Department's conception of proper administration of antitoxin. Every now and again a relatively small proportion of our people show a hypersensitiveness to bacterial protein and to foreign protein contained in horse serum and when this medication is administered to them they exhibit symptoms which are usually distressing and alarming, but infrequently of a very serious nature. This situation can readily be avoided by the injection of a very minute quantity of antitoxin (0.1 c.c. of a 1:100 dilution) intradermally. If no local reaction at the site of injection occurs within from twenty to thirty minutes, the patient is not hypersensitive to this product. If hypersensitiveness is present as shown by an inflammatory reaction, the patient may be desensitized by injecting repeated small doses and then we may proceed with our regular treatment. The so-called "scratch" test, which consists of making two linear scratches on the arm, is likewise used for this test of hypersensitiveness but it is believed that the intradermal test is more efficient and it is therefore recommended.

The curative dose of antitoxin has always been the subject of discussion. On one side are to be found those apprehensive lest the dose advocated be excessive and thereby do harm, and on the other side are to be found those who believe in large doses, perhaps repeating the same according to the gravity of the condition. Dr. Béla Schick on his recent visit to Boston gave us the following conclusions from his experience in the treatment of diphtheria:

> The injection of serum must be made as early as possible. Every hour of delay may be harmful and is particularly dangerous in severe cases in which the quantity of toxin produced in the throat is considerable.
>
> In all mild and medium cases 100 antitoxin units per kgm. of body weight are sufficient. In severe cases 500 antitoxin units per kgm. are to be injected.
>
> Repeated injections should be omitted as completely superfluous.
>
> Fifty antitoxin units per kgm. suffice for the purpose of prophylactic immunization.
>
> A slight improvement in the curative results may be achieved by intravenous injection; this may be followed in dangerous cases.

It is his belief that antitoxin exerts solely an immunizing effect and acts only from the time that it is administered, that is, that the toxin developed from the beginning of the infection becomes "fixed" in the body tissues and only that toxin developed after the antitoxin is administered is neutralized; that every human being has a minimum lethal point and once this has been reached by the poison, antitoxin is of no avail. It is therefore absolutely essential to institute the treatment of diphtheria as early as is possible in order that it may limit the toxin approach to this point.

The Department has recommended the following amount of antitoxin in the treatment of a case of diphtheria:

Amount of Antitoxin in the Treatment of a Case of Diphtheria.

	Mild Cases (Units).	Early Moderate (Units).	Late Moderate and Early Severe (Units).[1]	Severe and Malignant (Units).[1]
Infants, 10 to 30 pounds in weight under 2 years.	2,000 to 3,000	3,000 to 5,000	5,000 to 10,000	7,500 to 10,000
Children, 30 to 90 pounds in weight under 15 years.	3,000 to 4,000	4,000 to 10,000	10,000 to 15,000	10,000 to 20,000
Adults, 90 pounds and over in weight	3,000 to 5,000	5,000 to 10,000	10,000 to 20,000	20,000 to 50,000
Method of administration advised .	Intramuscular	Intramuscular	Intravenous	Intravenous

[1] When given intramuscularly use the larger amounts above indicated.

The rate of absorption of antitoxin is of course most rapid when given intravenously and one should, therefore, in treating cases which are seen late in the disease and where the patient is critically ill, give antitoxin intravenously, while in mild or moderately severe cases the injection should always be made intramuscularly.

In conclusion it may be stated that with the co-operation of physicians and of the people of Massachusetts, utilizing the preventive and curative remedies at hand, diphtheria can be made as rare a disease as smallpox.

THE ANTITOXIN TREATMENT OF LOCK-JAW, OR TETANUS.

By Richard H. Miller, M.D.

THIS dreaded disease has been known to mankind since the beginnings of history, and we find descriptions of it in ancient Greek writings of more than two thousand years ago. There has never been until recently, however, any specific method of treatment; the cases were handled in many different ways, the underlying purpose of the treatment by different men, at different ages, being to quiet the patient, overcome the spasms, and care for the local wound.

With the discovery of the value of the injection of serum from immunized animals as a form of therapy in certain diseases, it was soon noted that tetanus was one of the conditions in which this serum was of great value in treatment, and of still greater efficacy in prevention. The full realization of its value came during the recent great war, when the cases which were so numerous during the first few months were later cut down to an almost irreducible minimum; and when the cases did occur, they were much milder, as a result of the prophylactic use of the antitoxin on the battlefield. Furthermore, they were so much more successfully handled by the use of serum, that the mortality, which had been very high, was cut down to about 25%.

Preventive Use of Antitoxin.

It was the invariable custom during the war that every soldier receiving a wound, however slight, should immediately, either on the field or in the first-aid station, have a prophylactic injection of anti-tetanic serum. It was usually given under the skin of the anterior abdominal wall, or in the thigh. The dose varied, but the average was 1,500 units. This is not enough to do any harm, and there is no advantage in giving less. Local treatment of the wound was instituted as soon as possible.

In present day civilian practice a dose of 1,500 units of the serum should always be given in every case of —

1. Severe lacerated wound.
2. Compound fracture.
3. Lacerated wound, however small, in which there is dirt.
4. Every wound of the foot.
5. Every bullet wound.
6. Any contaminated wound on the hands and feet of children.

There is no limit which can be set on the number or type of cases in which it should be used. To be absolutely sure, it should always be used. Do not forget that even a small prophylactic dose will give rise to a slight degree of "serum sickness" which will usually manifest itself in about ten days by a greater or less degree of urticaria.

A small spot on the abdominal wall or outer side of the thigh is covered with iodine, and the injection made in one of these two areas, the serum being forced slowly into the tissues. The wound must be swabbed with iodine, all dirt removed, and all dead tissue carefully cut away.

Treatment after the Disease develops.

Tetanus usually begins with merely a slight feeling of stiffness and soreness in the jaws, so that chewing is a little difficult — at first this does not limit the opening of the mouth. The patient may or may not at the same time mention some difficulty with swallowing. At the first sign of these symptoms, and even before the diagnosis is definite, one should give 10,000 units of antitoxin, intravenously or intramuscularly, whether the patient is an adult or child, and at the same time one should inspect carefully the wound, being prepared to open it, or treat it more thoroughly if it already is open. If tetanus actually does not develop, no harm has been done — if it does, the proper treatment has been started at the earliest possible moment.

The disease, if present, next manifests itself by greater stiffness in the jaws, inability to open fully the mouth, stiffness of the muscles of the back of the neck, the pectorals, and the abdominal muscles; and later spasms and opisthotonus. The diagnosis in this case is certain and drastic treatment should be begun at once. The wound must be laid wide open — if it is a small one, excised completely — if a large one, stitches must be removed, the skin edges separated, and every bit of dead, sloughing, or unhealthy tissue cut away with scissors. The best local dressing thereafter is hydrogen peroxide, a light gauze pack, wet with this, being laid gently in the wound, not bandaged on, and changed every half hour.

In an adult give at once 10,000 units of tetanus antitoxin intraspinally, 30,000 units into a vein (or if this is impossible, intramuscularly) and 1,500 units into the subcutaneous tissues about the wound. The intraspinal dose should be of the concentrated preparation, of which only a few cubic centimeters of the serum make up the 10,000 units. The intravenous antitoxin of 30,000 units should be diluted with sterile salt solution up to an amount equaling 50 c.c. In the case of a child give 3,000 to 5,000 units intraspinally, but the same dose as for an adult intravenously and around the wound. In twelve hours repeat the intravenous and subcutaneous doses but not the intraspinous. In twenty-four hours repeat all of them, including the intraspinous. The total amount of antitoxin by this time will equal 114,500 units. Thereafter the dosage may be cut down a little if the patient is better — if not give again the same intravenous and subcutaneous doses in twelve more hours (that is thirty-six hours after the initial dose) and the three together at the end of forty-eight hours. The total by this time will be 187,500 units. This is not too much, even for a child, and may not be enough for either child or adult. It will probably, however, be sufficient after this, to give only the intravenous and subcutaneous doses, once a day, being guided by the course of the disease. As soon as one is sure that the disease is under control, and the patient is improving, all antitoxin may be omitted. The above given figures as to dosage need not be exactly carried out, but they give a good reasonable dosage. It will usually be found best to do it all under ether anæsthesia.

Next to the antitoxin the most important thing is to get a good special nurse. Sedatives must be used freely, morphine and chloral hydrate being valuable. Luminal, in doses varying from one grain in children to three grains in adults, every three hours by mouth, has proved of value in some cases. If the patient has convulsions the nurse should give ether, by the cone method, the moment they start, and keep it on till they have ceased.

If the antitoxin is given over a period exceeding twelve days, careful watch must be instituted for the onset of anaphylaxis during the administration. This anaphylaxis manifests itself by signs of collapse, labored breathing, rapid pulse, cyanosis, and sometimes unconsciousness. At the first appearance of any of these signs or symptoms, the treatment should be stopped at once.

This very brief outline of the treatment of tetanus does not purport to cover the subject in detail, and the local physician, if in doubt, should send the patient at once to one of the large hospitals.

The chief things to bear in mind are first, that in the case of any dirty wound a prophylactic dose of 1,500 units should be given; and in case of the onset of tetanus, drastic doses of anti-tetanic serum should be started without a moment's delay.

THE SERUM TREATMENT OF MENINGOCOCCUS CEREBROSPINAL MENINGITIS.

By James B. Ayer, M.D., Boston.

BEFORE considering the treatment of meningococcus meningitis (epidemic cerebrospinal meningitis) it is necessary to have clearly in mind the nature of the infection and the stages through which the disease passes. While the chief therapeutic agent is serum so long as any acute process remains, the method of employment, and amount of serum employed vary with the stage of the pathological process.

Review of Pathology during Course of Infection.

It is agreed that the meningococcus (Diplococcus intracellularis meningitidis of Weichselbaum) is the causative agent in this disease. It is certain that some persons harbor this organism in the nasopharynx and act as carriers of infection; it is likewise certain that the nasopharynx is frequently the portal of entry of infection either from carriers or because of increased virulence of organisms already present, or diminished resistance of the individual harboring pathogenic meningococci.

The older view, still held by many, is that organisms travel directly to the meninges from the nasopharynx by way of the cribriform plates of the ethmoid bones, but it has been proved in numerous cases that blood infection precedes meningitis. In fact there are many examples at hand of septicemia in which no meningitis supervened. These cases present fever, malaise, frequently a rash (hence the name "spotted fever") and positive blood culture.

Whether or not septicemia precedes meningeal invasion in every case, there is a short prodromal period of one or two days after which meningeal symptoms appear and rapidly dominate the clinical picture; coincidently the pia-arachnoid becomes at first cloudy and œdematous and very soon purulent. As a rule the cerebral meninges are earliest involved, but the process rapidly becomes generalized throughout the cerebral and spinal meninges. It is at this stage that lumbar puncture is usually first performed, and the spinal fluid is found to be cloudy to the eye and to contain many polymorphonuclear leucocytes; the organisms may be many and easily found, or may be so few as to be found only on culture.

During the next few days the meninges show a progressively increasing amount of exudate, until underlying convolutions of the brain are quite hidden from view. Likewise the spinal fluid is found to contain more and more exudate, at first purulent, later fibrino-purulent. Sometimes it is so thick as to clog the needle. It is at this stage of the disease that many patients die. Besides the meningeal invasion there is evidence of systemic infection as seen in recurrent septicemia, blood cultures being alternately positive and negative, evidence of reinfection of the blood stream from the meninges.

If the patient lives, a tendency to localization of the exudate becomes evident. In the meninges, the exudate collects chiefly in the cisternæ at the base of the brain, deep in the sulci, and about nerve roots of the brain and spinal cord. Two foci at which such collections frequently occur are the cisterna magna and velum medullary. These foci are of importance because exudate in both of these situations causes hydrocephalus, and forms a barrier to the exit of cerebrospinal fluid from the cranium, and also an obstruction to the free flow of serum over the cerebral meninges and into the ventricles. In the substance of the brain we now see direct invasion from the meninges and from the ventricles, the latter being infected as a rule early, perhaps synchronously with the meninges. In other parts of the body also there is a tendency for the infectious process to localize, in the joints, on the pericardium, the endocardium, and the pleura.

At this stage of the disease, after two or three weeks, if death does not occur, a sub-acute stage sets in, and ultimate recovery is possible only with considerable permanent damage. Not infrequently, also, relapse occurs, indicative of reinfection from some active focus.

We may summarize the pathological stages of the disease as follows:

1. Carrier stage: an indefinite period.
2. Stage of invasion: a few hours.
3. Stage of septicemia (in some, perhaps all, cases): a few hours.
4. Stage of invasion of meninges, with acute purulent exudate: a few hours to several days.
5. Stage of localization and pocketing of exudate: any time after first week.
6. Stage of degeneration and repair, interspersed perhaps with periods of recrudescence of acute process: weeks to months.

TREATMENT.

For fifteen years we have had in anti-meningococcic serum a therapeutic agent of high potency. In that this serum is anti-bacterial, and not a neutralizer of toxins as is diphtheria antitoxin, it must be placed in proximity to the organism. From what has been said above it is obvious that the first few days constitute the critical period of the disease; at this time complete cure may be expected; later when localization of organisms has occurred the task may be difficult or quite impossible, although even in neglected cases treatment should not be given up, but other methods of approach should be employed, as indicated below.

Except in epidemics the early stages of invasion can hardly be recognized as meningococcus infection. We therefore are concerned especially with the treatment of the disease in the fourth and fifth stages as given above, namely with the invasion of the meninges from its inception to the final localization and dislodgment of infectious foci.

A patient presenting meningeal symptoms calls for an examination of the cerebrospinal fluid without delay. There is one exception to this general rule, namely, when we know a patient to be ill with a septicemia due to pneumococcus or streptococcus. Meningismus is not uncommon in these infections without the presence of a true bacterial meningitis. In that spinal injections of serum and even withdrawal of spinal fluid have been shown to facilitate the passage of organisms from the blood stream to the meninges we would in such cases tend to precipitate a meningitis of a character we could not hope to cure. If the fluid obtained by lumbar puncture is cloudy, it is well to draw off *slowly* (the patient lying on one side) enough fluid to reduce the pressure to about 50 mm. as shown in an aqueous manometer attached to the needle — an amount usually about 30–40 c.c. Without waiting for laboratory confirmation of the type of infection, the bowl of a syringe with rubber tubing 50 cm. in length is immediately attached to the needle and 30–40 c.c. of anti-meningococcic serum, warmed to the temperature of the body, allowed to flow in *slowly*, the height of the syringe being gradually raised as the intraspinal pressure rises. Only a serum free from hemoglobin and any appreciable amount of sediment should be used. A stopcock placed on the needle is useful in controlling the rapidity of outflow of fluid, but the trocar may also be used to accomplish the same end. Rapid or sudden changes in fluid pressure, either decrease or increase, are prone to cause respiratory symptoms. The whole procedure, withdrawal of fluid and introduction of serum, should take approximately fifteen minutes.

The spinal fluid is now examined without delay in the laboratory. Films made from the sediment of centrifuged fluid, should be stained by the Gram method, and cultures planted on blood agar or hydrocele agar. If the organism recovered from the fluid proves to be the meningococcus, intraspinal injections should be repeated once every twenty-four hours for a week, whether or not the temperature has fallen to normal earlier. If the patient be very sick and "toxic," this is an indication of septicemia, which may be determined by blood culture. But whether or not the culture is positive it is good practice in such cases to give intravenous injections of serum between the intraspinal ones, rather than to increase the number of spinal injections. The technique of the injections should be as follows: In every case before administering serum intravenously, the patient should be tested for serum hypersensitiveness by means of an intradermic injection of 0.1 c.c. of a 1:100 dilution of the serum. If at the end of one-half hour no wheal or erythema develops, then inject subcutaneously 0.5 to 1.0 c.c. of a 1:10 dilution of the serum. If after one-half hour no reaction occurs one may proceed with the intravenous injection of the serum. On the other hand if a wheal does develop in response to the intradermic test, or if a constitutional reaction occurs after the test subcutaneous injection, it is evident that the patient is hypersensitive to horse serum protein and it is necessary to desensitize the patient by a series of subcutaneous injections: 0.2 c.c. of a 1:100 dilution of serum and doubling the dose every half hour until 1 c.c. of undiluted serum is given, then injecting 0.1 c.c. intravenously and doubling the dose every half hour until the whole therapeutic amount of serum is given.

In the intravenous injection the first 15 c.c. of the serum should be injected at the rate of 1 c.c. per minute and a total of 50 to 120 c.c. may be given. By introducing the serum so slowly it is possible to avoid anaphylactic shock which otherwise not infrequently occurs.

A critical period in the treatment arrives at the end of the first week. If the patient is apparently on the road to recovery, the spinal fluid should be examined once in two or three days and the results of such examination correlated with clinical findings. If the fluid tends toward normal and no clinical evidence of recrudescence appears it is usually safe to withhold serum, although an occasional injection is advocated by some. If organisms persist in the fluid, with or without other signs of an active process, daily injections should be continued.

THE MENINGEAL BLOCK.

At this period, however, the mind should be kept open for early signs of localization of organisms in foci of the meninges not in communication with the lumbar sac. It is not uncommon, at this stage, for the temperature which had fallen to normal, to rise abruptly, the patient again complaining of stiff neck and headache. On lumbar puncture the fluid may show a decrease in previous pressure, a lessening of the cell count, and no organisms. This picture, symptomatic relapse with improvement in the lumbar fluid, almost always indicates a fibrino-purulent block in the meninges, and calls for immediate treatment by means other than the routine administration of serum by the lumbar or by the venous route. In that the block is frequently at or near the foramen magnum, forcible rotation of the head may be employed, and has been successfully used, to dislodge the block, allowing cerebral fluid to descend into the spinal canal, and serum to ascend to the cerebral meninges. If this manœuvre is unsuccessful, two methods of approach are still left by which the upper reservoirs may be reached, namely puncture of the cisterna magna and ventricular puncture. While these methods may appear heroic, the writer has no hesitation in advising their immediate use in complications of this sort. Further treatment by the lumbar route now aggravates symptoms, for the serum itself is an irritant; the infection must be reached from above, and that without delay.

In the above detailed account of the treatment it is evident that much attention to detail is necessary. Frequent blood and spinal fluid cultures and conscientious examination of the fluid for number and type of cells and for organisms on direct films are of great value in estimating the value of treatment. It is wise to take another precaution. A number of types of meningococci have been isolated. While the Massachusetts Department of Public Health serum is prepared from 15 strains, including all known types, yet different sera have varying potency in a given case. It is wise therefore when the organism is first isolated to maintain cultures of it and in the event that the case does not respond to the serum treatment, the culture should be sent to the State Laboratory so that agglutination tests may be performed and the most potent serum for the case under treatment be furnished.

Other Complications.

Certain complications other than meningeal block may demand attention, as, for example, arthritis, serum sickness, pericarditis, and endocarditis. As a rule, however, no great variation in the serum treatment as recommended is necessary. For these complications and also for some of the meningeal symptoms, treatment other than serum is important. Sedatives employed wisely are usually necessary at one time or another. Also in the after-care of protracted cases physiotherapy, and in paralyzed cases orthopedic measures, become of paramount importance. But during the acute and sub-acute stages, serum properly administered is undoubtedly the only reliable agent.

In taking upon himself the treatment of a case of meningococcus meningitis the physician must be prepared to spend much time, especially during the first critical week of the disease. No patient is too sick but that he may recover; no case is so mild but that it may present alarming complications. The points of greatest importance in treatment are: early diagnosis, adequate, but yet not too intense treatment with serum in the early stages of infection, persistent clinical and laboratory supervision, and an eye to complications which must be treated, heroically perhaps, without delay.

VACCINE AND SERUM THERAPY IN PNEUMONIA.

By Frederick T. Lord, M.D.

Vaccine Therapy.

It is possible in the laboratory by the use of vaccines to protect animals against many times the otherwise fatal dose of any of the different types of pneumococci but for the production of the highest grade of resistance in animals inoculations must be made with living cultures.

The first attempt on a large scale to prevent pneumonia by vaccination was made by Wright among the South African miners. Promising results were obtained in 1913 at the Premier Mine. Among 17,000 inoculated the death rate was six per thousand, in contrast to seventeen per thousand among 6,700 uninoculated. The importance of the different types of pneumococci was not known at the time this experiment was performed but Lister later employed vaccine containing types of pneumococci prevailing among the miners and found during nine months of observation no cases of pneumonia due to the types contained in the vaccine. During the World War Cecil and Austin at Camp Upton and Cecil and Vaughan at Camp Wheeler, using vaccines containing Types I, II, and III pneumococci, obtained encouraging though inconclusive results. The experimental work of Cecil and Blake on monkeys carries the evidence a step further. The inoculation of monkeys with dead pneumococci lowered the mortality from but did not protect against experimental pneumonia. Successful protection was obtained, however, with living organisms. Cecil and Steffen (Journ. Exp. Med. Sept. 1, 1921) have found that when large subcutaneous or small intravenous doses of pneumococcus vaccine are used the immunity against experimental pneumonia in monkeys is complete. They (Treasury Dept. Pub. Health Reports, Vol. 37, No. 44, Nov. 3, 1922) also find that the intratracheal inoculation with Type I pneumococcus vaccine renders monkeys completely immune against experimental Type I pneumococcus pneumonia. Although there is promise for the future in prevention of pneumonia by means of vaccines, the matter must still be regarded as in the experimental stage. Thus far the evidence does not warrant its general adoption.

Preventive inoculation has promise of success because by this means it is possible to stimulate the production of an active immunity. But an active immunity takes time for its development. There is little theoretical justification for the belief and no evidence, direct or indirect, that dead, living, or autolyzed pneumococci used as a vaccine can be of any service whatever in the treatment of pneumonia. In the presence of the existing infection it cannot be assumed that the production of active immunity will be more rapidly induced by the injection of a few million dead organisms under the skin than by the natural infection itself, and there is the danger that the patient's power of resistance may be taxed beyond its capacity to respond.

Serum Therapy.

The possibility of treating pneumonia with specific anti-serum is the direct outgrowth of laboratory studies of the pneumococcus and of experiments on animals. Such studies have shown that not all pneumococci are alike, as was formerly believed, and that out of the general group of such organisms three fixed types known as Types I, II, and III can be separated. The repeated inoculation of animals with a strain of one of these three fixed types leads to the development of an immunity which is specific for the type used and the serum of the immunized animal has protective and curative action against the homologous organism. This same serum has, however, no protective or curative action against any other type of pneumococci. A further type, known as Type IV pneumococcus, is composed of a group of organisms made up of individual strains. Inoculation of animals with strains of Type IV gives rise to immunity only against the particular strain used and not against other Type IV organisms.

These discoveries were soon applied by Cole and his associates to the treatment of pneumonia. The method is by the use of serum obtained from horses immunized by the injection of dead and, sometimes, of increasing doses of living pneumococci. Unfortunately a sufficiently potent serum for treatment of man can be obtained only by the injection of Type I pneumococcus into the horse and this method of serum treatment is therefore applicable only to Type I pneumococcus pneumonia. It is hoped that further advances will make possible the employment of specific therapy against other types also. The presence of alien serum in the final products thus far used is a disadvantage which the experiments of Huntoon (J. Immunol. 6, 117, (March) 1921) and Cecil and Larsen (J. A. M. A. July 29th, 1922) on the production and use of pneumococcus antibody solution may successfully obviate.

Evidence in Favor of Serum. — Before undertaking any method of treatment we should critically examine the evidence in its favor and become familiar with its possible dangers. The evidence in favor of the treatment of Type I pneumococcus pneumonia with this serum is that there is usually a striking improvement in the general condition of the patient. The temperature often falls and does not again reach its former level though in most cases the course of the disease is not shortened and lysis or crisis occurs at the usual time. The pulse rate is lower, the cyanosis less marked, and the mental condition improved. Such results are the more striking the earlier the serum treatment is given and in cases treated within the first three days of the illness the disease runs a milder course in comparison with the clinical picture in patients not so treated. The area of lung involvement ceases to spread or extends more slowly in serum treated cases. Blood cultures previously positive usually become negative, after the administration of the serum, suggesting that the septicemia is checked. But the most important evidence is a reduction in the mortality. Of 181 collected cases (Cole, Mathers, Fussell and Famulener, Hartman and Lacy, Clough and Richardson) of Type I pneumococcus pneumonia without serum treatment, 52 died, a mortality of 28 per cent. In contrast to this are 495 serum treated cases of Type I pneumococcus pneumonia, collected by Cole, with 52 deaths, a mortality of 10.5 per cent. Though certain desirable details regarding the two groups are lacking and the control group of 181 cases was antecedent, not contemporaneous, yet the considerable number in the two series may serve to balance possible errors.

Further and strikingly positive evidence in favor of the therapeutic value in Type I antipneumococcus serum is afforded in the report of Cecil and Blake of the recovery of five serum treated monkeys with experimental Type I pneumococcus pneumonia while the control monkeys died. In these experiments on monkeys it was noted that the earlier the serum was given the shorter and less severe the pneumonia.

Our series of Type I pneumococcus pneumonia cases treated with and without serum is as follows:

Type I Pneumococcus Pneumonia.

To December, 1922.	Number.	Died.	Mortality (Per Cent).
Control group without serum	38[1]	8	21.0
Serum on or before completion of third day	21	2[2]	9.5
Serum after completion of third day	43	12	25.5
Total	102[3]	22	21.5

In this series no especially favorable results are noted among the 64 serum treated cases unless this group is separated into those given serum before or after the completion of the third day of the pneumonia. Of 21 cases given serum on or before the completion of the third day only two died, a mortality of 9.5 per cent, while of 43 cases treated after the third day 12 died, a mortality of 25.5 per cent. Thirty-eight cases may serve as controls with 8 deaths, a mortality of 21 per cent. The series suggests a definite lowering of the mortality among those treated early in the course of the disease.

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[1] The control group comprises cases scattered through the entire period covered by those serum treated. Some were excluded from serum treatment because of a history of asthma or positive intracutaneous tests, others were arbitrarily reserved as controls, and others were seen late and recovered or died before serum could be given and some seen late were regarded as mild and likely to recover without serum treatment. To this last group may be ascribed the lower mortality among the control group than among those treated with serum after the third day.

[2] One of these two fatalities was a man of 55 treated with only 20 c.c. of serum on the third day, 160 c.c. on each of three subsequent days. The second case was a man of 46 given four injections beginning on the third day. In addition to the pneumonia he was found at autopsy to have hypertrophy and dilatation of the heart. There was a third death in this group but as this patient recovered from pneumonia to succumb following an operation for pulmonary abscess about one month later, it is included as a recovered case.

[3] Seventy Massachusetts General Hospital and 32 cases seen outside the Hospital.

Diagnosis of the Type of the Infection. — No clinical features serve to distinguish infection with the different types of pneumococci and resort must be made to the laboratory for their identification. It is highly undesirable to wait until the patient is dangerously ill before determining the type of infection. Unfavorable changes may come quickly in pneumonia and the diagnosis of type should be made as soon after the onset of the disease as possible. It is undesirable to wait for the development of physical signs before sending the sputum for examination. Such initial symptoms as chill or chilliness, stitch in the side, rapid elevation of temperature, cough and expectoration, are suggestive enough to make immediate sputum examination and determination of type desirable. The sputum should come from the deeper parts of the air passages. It should be collected in a small, clean, wide-mouthed and preferably sterile bottle and sent at once to the laboratory. If as much as two or three teaspoonfuls of sputum can be obtained, a rapid precipitation method described by Krumwiede and Valentine may permit a determination of type within a few minutes. No specimen is too small for examination provided it comes from below. The determination of type by the usual mouse method depends on the presence of living organisms in the sputum and the addition of an antiseptic therefore renders the specimens wholly valueless for this test. Sputum bottles distributed by the State Department of Public Health are available for the collection of specimens from pneumonia cases. Bottles containing carbolic acid for the diagnosis of tuberculosis should not be used. In view of the supreme importance of early diagnosis of type such arrangements should be made that the diagnosis of type can be started at once on receipt in the laboratory and easily accessible laboratories open day and night should be available. In case of unavoidable delay the specimen should meanwhile be kept on ice.

Blood cultures, made in all cases of pneumonia as early in the course of the disease as possible, may lead to the determination of type before the sputum can be obtained.

There are other ways in which the type of infection may be determined. The urine of patients with pneumonia due to the fixed types of pneumococcus mixed with antipneumococcic serum may show a specific precipitation indicating the type of the infection, and this test should be performed in all cases to increase the chance of making the earliest possible diagnosis of type. The soluble substance giving rise to the reaction may appear in the urine within the first twenty-four hours of the illness. If necessary, the urine should be concentrated[1] before the application of the test. There is still another measure to which resort may be made and that is lung puncture. This, however, is seldom necessary if adequate effort is made by other available means.

Indication for Serum Treatment of Pneumonia.— The supreme importance of early administration is a well established principle in the serum treatment of disease and obtains as well for the use of anti-sera for diphtheria, meningococcus meningitis, and tetanus as for pneumonia. During the course of pneumonia certain substances are formed which neutralize the curative element in the specific serum and these are formed in larger and larger amount as the infection proceeds. The earlier the serum is given the more effective it is likely to be. The importance of early treatment naturally suggests the routine use of Type I serum in all cases of pneumonia without waiting for the report from the laboratory of the type of pneumococcus in the pneumonia in question but it is quite generally agreed that it is undesirable to give Type I serum to all patients with pneumonia irrespective of type. Type I pneumococcus is found to be the cause in only about one-third of all cases of lobar pneumonia and certain reactions following the intravenous use of horse serum make it undesirable unnecessarily to subject the remaining two-thirds to these reactions, it being understood that patients with pneumonia due to other than Type I pneumococcus will derive no benefit whatever from the Type I antipneumococcus serum. Type I antipneumococcus serum may be used in the treatment of Type I pneumococcus broncho- as well as Type I pneumococcus lobar pneumonia. The use of serum is not attempted in children owing to the small size of the veins and the difficulty of administration.

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[1] See Monograph of the Rockefeller Institute for Medical Research, No. 7, Oct. 16, 1917, p. 30.

Kind of Serum to employ. — Only a reliable serum and one free from hemoglobin and sediment should be employed. The serum should be of such potency that 0.2 c.c. will regularly protect mice against at least 0.1 c.c. of an eighteen hour broth culture of pneumococci of such virulence that 0.0000001 c.c. of the same culture will kill a mouse weighing twenty grams within forty-eight hours. In Massachusetts, Type I serum manufactured by the State Department of Public Health is available without charge for citizens of the State. In New York State Type I serum is made by both the State and City Departments of Health.

Precautions in the Use of Horse Serum for Pneumonia. — The great infrequency of serious disturbance in the usual subcutaneous use of immune horse serum in the treatment of diphtheria would seem at first sight to make it unnecessary to dwell at any length upon this aspect of the subject but it may be that diphtheria is peculiar in this respect. Bronfenbrenner and Schlesinger, (Proc. of Soc. for Experimental Biology and Medicine, 1921, XVIII, pp. 147-148) noting the apparent relative freedom from accidents in serum treatment of diphtheria, have shown that there is in guinea pigs a diminished anaphylactic reactivity during diphtheria intoxication. Antipneumococcic serum is whole horse serum and is given in large amounts directly into the circulation, somewhat increasing the risk. Thus the treatment of pneumonia presents a different problem but in the present state of our knowledge it would seem desirable to observe certain precautions whenever horse serum is used and to apply these precautions without exception no matter by what route the serum is given and guard its administration as well in diphtheria, meningitis, and tetanus as in pneumonia. Freedom from accidents in the past may for the most part be ascribed to the great infrequency of individuals sensitive to horse serum in the community rather than to the general adoption of precautions on the part of physicians. Our knowledge of these matters has increased rapidly during recent years and no physician should use horse serum subcutaneously, intrathecally or intravenously for the treatment of any disease without familiarity with its dangers infrequent though they may be.

There are two groups of cases in which the use of horse serum may be especially dangerous. The first group includes spontaneously sensitive persons, usually those subject to hay fever or asthma. Gillette (N. Y. State Journ. Med., 9, 373, 1909) in 1909 collected thirty cases including one of his own in which death or collapse followed soon after the administration of diphtheria antitoxin and of this number eighteen gave a history of asthma. Needless to say not all such unfortunate accidents find their way into the literature. Though their total number must represent only a very small percentage of those to whom horse serum is given, yet it is a real danger which I may still further illustrate by saying that eight deaths have been reported to me by physicians following the subcutaneous administration of diphtheria antitoxin in patients with asthma. Boughton (J. A. M. A. Dec. 27, 1919) reported death within forty-five minutes after the intravenous injection of one minim of normal horse serum to an asthmatic. In the second group are artificially sensitized patients who having already been treated with horse serum, are beyond the refractory stage and have passed into the period of increased susceptibility. Avery, Chickering, Cole, and Dochez (Monographs of the Rockefeller Institute for Med. Res., No. 7, October 16, 1917) report an instance of severe anaphylaxis in a patient who had received an intravenous dose of antipneumococcic serum ten days before. One death from antipneumococcic serum has been recorded by Cecil (New York Med. June, 1919, CVII, 1003) in a patient given a second dose after two weeks during a relapse of the pneumonia.

An affirmative reply to the question whether the patient has ever had hay fever, asthma, or a previous injection of horse serum immediately places him in the class of those to whom the administration of horse serum may be dangerous, and it should be remembered that patients once treated with serum though originally insensitive may become sensitive after the lapse of about ten days following the last injection. Of these two groups by far the most dangerous is the patient with spontaneous hypersensitiveness. The susceptibility of the artificially sensitive is less and diminishes with the lapse of time following the initial injection.

This reaction occurring in sensitive persons is analogous to the so-called anaphylactic reaction in animals. It has nothing to do with the curative action of the serum but arises in consequence of the entrance directly into the body of protein substances common to the horse and foreign to man. We are fortunately able to determine sensitiveness to horse serum by very simple tests which should be performed after the establishment of a Type I pneumococcus pneumonia in all cases to be treated with serum.

Sensitiveness to horse serum may be tested by injecting *into* (not *under*) the skin 0.02 c.c. of sterile normal or immune horse serum[1] diluted 1:10 or 1:100 with sterile normal saline. At the same time a control injection should be similarly made of an equal amount of sterile normal saline alone into another part of the skin, comparing the two sites of injection. These injections are best made with a small one cubic centimeter syringe, like that used for tuberculin injections, graduated into hundreths of a cubic centimeter, to which is attached a fine needle of about twenty-eight gauge. It is most convenient first to inject 0.02 c.c. of the salt solution alone into the skin of the forearm or upper arm, raising a small white elevation of skin by the intracutaneous injection. Introduction first of the salt solution makes it possible later to use the same syringe for the diluted serum injection. The 1:10 dilution of serum may be made in a small graduate. The serum injection should be made at some distance from and at the same level with the previously injected saline. In sensitive patients there appears usually within a few minutes an urticarial wheal surrounded by a zone of erythema which slowly increasing in size may reach that of a half dollar within an hour and which then slowly subsides while the site of the control injection of salt solution fails to show any such local reaction. Great care must be taken to be sure in the performance of the test that diluted serum is actually injected into the skin. An error in this part of the test may result in disaster. If the injection is made subcutaneously and not intradermally a sensitive individual may be wrongly regarded as insensitive. A spontaneously sensitive patient may succumb to as small an amount as 1.0 c.c. of serum subcutaneously.

Sensitiveness to serum is not excluded with absolute certainty by a negative intradermal test and to make assurance doubly sure a still further precaution must be taken to desensitize all patients before proceeding with the injection of serum. This is accomplished by the injection, in this instance, *under* the skin of 0.5 c.c. of normal or immune horse serum. Experiments have shown that the slow absorption of this small amount of horse serum will enable even highly sensitive animals to tolerate large amounts without trouble. The initial intravenous dose of serum may then be given a few hours later to patients without a history of hay fever or asthma or a previous injection of horse serum and with negative skin tests. In treating patients it must be remembered that if more than a week elapses after the last injection of serum, sensitiveness to serum may have developed and further injections should be given only with extreme caution.

If the intradermal skin test is positive intravenous serum treatment can still be given by a slow process of very gradually increasing subcutaneous and intravenous injections but in view of the increased risk of serious and even fatal reactions in sensitive individuals it seems wiser for the present to exclude from intravenous serum treatment patients with a history of hay fever or asthma, those who have previously had horse serum and those with positive intradermal tests. Some caution may well be exercised also in intravenous serum therapy with a history of urticaria, angioneurotic edema and eczema.

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[1] For this purpose it is convenient to have a few cubic centimeters of sterile horse serum in a small bottle to avoid the necessity of opening a large lot of serum. The 1,000 unit package of diphtheria antitoxin as supplied by the State is a convenient form in which to obtain horse serum.

Administration of Serum. — The serum is given intravenously and usually into a vein at the bend of the elbow. With the necessary articles at hand,[1] the bottle of serum is kept warm by partial immersion in a basin of warm water. A twenty c.c. Luer syringe is filled with equal parts sterile saline and serum and placed near at hand. The system of rubber tubing connected with the three-way stopcock is completely filled with serum by means of another of the Luer syringes and after all air bubbles are expelled this part of the outfit is also placed near at hand. The skin is cleaned with ether and painted with tincture of iodine. The tourniquet is applied to the upper arm, the needle, attached to the third twenty c.c. Luer syringe, is thrust into the vein. When blood flows the needle is shoved further in and securely lodged within the lumen some distance above the site of venous puncture. Fifteen c.c. of blood are now drawn into the syringe which is then detached, leaving the needle in place. Ten c.c. of this blood is mixed with the bouillon and the remainder added in varying amounts to melted plain agar cooled to 45°C. Plates are then poured from this blood agar mixture. The syringe containing the diluted serum is now attached to the needle, the tourniquet removed and the contents slowly injected spending about ten minutes in the injection of the first twenty c.c. of diluted serum. After the slow injection of this amount the three-way stopcock is brought into use and the remainder of the serum injected. Each dose of serum is usually 100 c.c. and this amount is given every eight or twelve hours until it is clear that the pneumococcus infection is overcome.

Serum Reactions. — There are three types of reactions which may follow serum therapy. Of these the most important and dangerous is anaphylactic shock occurring only in sensitive individuals and avoidable by the precautions already mentioned. The symptoms develop at once or within a few minutes of the injection, hence the caution to give the first part of the first injection slowly. The reaction resembles an asthmatic attack with violent dyspnea, marked cyanosis, rapidity and weakness of the pulse, collapse and a general urticarial eruption. The attack may be fatal. Atropine sulphate 1/120 gr. or adrenaline chloride, ten minims of the 1:1000 solution, or both, will usually give relief unless the attack is severe. Artificial respiration should, if necessary, be instituted. A second consequence of the administration of serum is the thermal reaction, occurring usually within an hour of the termination of the injection and characterized by chill or chilliness, elevation of temperature, some dyspnea, cyanosis and elevated pulse. The attack is usually over within an hour. The elevation of temperature is followed by a fall frequently to below its former level. Though disturbing to the patient the thermal reaction is not dangerous. Nurses and attendants should be fully informed of the likelihood of these symptoms following serum injection, otherwise they will become unduly alarmed. The thermal reactions come after the first or later doses. In one of our cases it was not observed until after the sixth injection. Some reassurance but no special treatment is necessary. A third reaction is serum disease which occurs in varying degrees of severity in about one-half the serum treated cases, beginning about one week or later after the last dose and lasting a few days, a week or more. Elevated temperature, urticaria, edema of the skin, stiff and painful joints and enlargement of the glands and spleen accompany the attack. Serum sickness is troublesome but not dangerous. Soothing skin washes and subcutaneous injections of ten minims of adrenaline chloride (1:1000) give some relief.

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[1] Atropine sulphate 1/100 gr. adrenaline chloride 1:1000, small copper sterilizer, sterile gauze, ether, tincture of iodine, adhesive plaster, tourniquet, 100 c.c. bouillon culture media, 100 c.c. sterile freshly distilled normal saline, hemostatic forceps, three 20 c.c. Luer syringes, one 18 gauge needle, three-way stopcock with attached rubber tubing to connect by two arms through adapters with the needle and the syringe and by the third arm with a bottle containing the serum. The rubber tubing leading to the bottle should terminate in a piece of glass tubing three or four inches long.

RABIES.

By George T. O'Donnell, M.D., State District Health Officer.

CONSIDERED from a mortality point of view this disease cannot be placed in the same category as the other great and severe infections which afflict mankind. Its incidence has not been comparable to any of these. Nevertheless it claims some human victims each year and creates a vast amount of mental suffering, fear and anxiety in those who have been exposed and in their families. It claims many victims among the domesticated animals entailing a very considerable economic loss.

In the last few years in this state the incidence has gradually increased and in 1922 the number of deaths in Massachusetts numbered 5.

The fact that this very fatal and terrifying disease has not been and is not now of frequent occurrence, and the fact that measures for its reduction and even its total eradication are so simple, together make somewhat of a sad commentary on health control efficiency in general.

It may be mentioned that among us there are those, including a few with medical training, who doubt the existence of this disease and prefer to think that all that is written and spoken in regard to it, refers to a psychic disturbance. Suffice to say, if any of these who are skeptical should look into the evidence with open mind, he would readily be convinced that the disease does exist as a well-defined entity.

The Etiology of Rabies.

Rabies is an acute, specific, rapidly fatal infection, communicated from a rabid animal to a susceptible animal, usually through a wound produced by biting. It is undoubtedly caused by a living micro-organism, not as yet identified, which invades the nervous system, rendering it virulent and inducing symptoms.

Man always contracts the disease from some lower animal, usually the dog. It is most common in dogs and rather rare in cats. The active principle of rabies is most often found in the saliva and central nervous system. It may be in the saliva at least three and probably eight days before symptoms occur.

Symptoms.

Dogs which have bitten either another dog or man will show symptoms within ten days if at all. If symptoms are not present in 10 days, it is safe to assume that the one bitten has no need for preventive treatment, because the saliva of the dog is infectious only beginning 10 days before the appearance of symptoms. The period of incubation varies from fourteen days to one year or more. The average period in man is forty days; in the dog, from twenty-one to forty days. The site of the wound, however, is a factor upon which this variation depends. Wounds on the face and upper body, where the nerve supply is abundant are more apt to be followed by a short incubation period. The path of invasion by the virus is along the nerve trunks.

The symptoms are all referable to the central nervous system. First is established an increased nervous excitability, which is followed by marked depression and finally complete loss of functioning power. The centers in the brain which control respiration and deglutition are severely affected, making breathing and swallowing most difficult, resulting finally in spasm and paralysis. General convulsions frequently occur with also paralysis of arms and limbs.

Mental disturbances vary from morbid worry and anxiety to delirium and mania. Symptoms are similar in men and animals of lower order.

When the disease is established, it is always fatal. No other disease presents the foregoing characters in combination. The detailed clinical symptoms in man and animal will not be taken up in this paper.

As to history and distribution it can be said that the disease is as ancient as the world's history and as widespread as to include all sections of the earth. It flourishes to a less degree in certain sections, due very probably to two factors, a difference in the nature of the virus and rigidity of quarantine measures.

In the light of our present knowledge, susceptible animals including man, possess no natural immunity to this disease. Immunity can, however, be acquired in the exposed case and it is this phase of the whole subject which is of the most vital importance to man.

Preventive Methods.

In 1886 Louis Pasteur worked out successfully a method of establishing immunity with a "fixed virus," an immunity which became effective in about three weeks. This was possible of application in exposed individuals because of the long incubation period and because, too, of the fact that cauterization of the wound quite evidently prolonged further this period.

The virus of rabies as found ordinarily in animals is termed a "street virus" and has a varying incubation period. This virus when passed through a series of rabbits, which animal is very susceptible, establishes in time a fixed and much shorter period of incubation, paralysis being produced in a definite number of days, and becomes what is known as a "fixed virus." This latter gives a definite material to work with.

On the day that paralysis is produced the rabbit is killed and the spinal cord removed. It is then dried by suspending sections of it in a jar of potassium hydrate. It is dried variously for periods of one to eight days. The process of drying weakens the virus and treatment is begun with the weakest cord.

A measured section of this desiccated cord is emulsified in normal salt solution and a definite amount is injected hypodermically, daily. This treatment extends over a period of three weeks.

Following is the outline of the twenty-one day scheme of rabies vaccine treatment. Full and explicit directions accompany each lot of vaccine which comes from the laboratories, precluding the possibility of error in administering treatment.

Day.	Days Cord dried.	Face Cases.	Number of Injections.	Adults (c.c.).	Children (c.c.).	
					6–10 Years.	1–5 Years.
1	8–7–6	8–7–6	2	3	3	3
2	8–7–6	8–7–6	2	3	3	3
3	5–4	5–4	2	3	3	3
4	5	5	1	2	2	2
5	4	4	1	2	2	1½[1]
6	4	4	1	2	2	1½[1]
7	3	3	1	2	1½[1]	1
8	3	3	1	2	1½[1]	1
9	5	2	1	2	2	2
10	4	4	1	2	2	2
11	4	4	1	2	2	2
12	3	3	1	2	2	1½[1]
13	3	2	1	2	2	1½[1]
14	4	4	1	2	2	2
15	4	4	1	2	2	2
16	3	3	1	2	2	1½[1]
17	3	2	1	2	2	1½[1]
18	4	4	1	2	2	2
19	4	4	1	2	2	2
20	3	3	1	2	2	2
21	3	2	1	2	2	2

In justice it must be stated that this treatment is not absolutely devoid of danger, but this is such a small factor that it should not have the slightest influence in its acceptance by those exposed to the disease.

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[1] Face cases receive adult doses.

Indications for Treatment.

About 15% of the untreated, exposed, reported cases die. Of the treated cases, 1% is the constant death rate and one-half of these are shown by record to have died within fifteen days after completion of treatment, and, too, are in cases which delayed beginning treatment.

Anti-rabic treatment should be given —

To persons bitten by animals which have been proven rabid either by clinical symptoms, or by microscopic examination of the brain.

To persons whose hands or face have been contaminated with saliva of a rabid animal without being bitten. This is because of the possible presence of cracks, hangnails or other small open wounds.

To persons bitten by stray dogs which cannot be located. The treatment is given as a precautionary measure.

To persons bitten, pending the laboratory diagnosis on the brain of the biting animal, provided that the symptoms or actions of the animal were suspicious.

As to suppression and reduction of the prevalence of rabies, much can be said of the many methods recommended. However it is obvious that in those countries where quarantine regulations on dogs are rigidly enforced at all times, rabies is practically unknown or extremely rare.

The muzzling of dogs at various times as demanded, strict enforcement of the dog license regulation with the killing of unlicensed or stray dogs, have had some effect, but when judged by and large these methods are at the best palliative only.

Recently a method of immunizing dogs has been produced by Japanese investigators which gives greater promise of reducing the incidence of the disease than any heretofore devised. By this method a dog can be made immune for a period of one year by the single injection subcutaneously of 5 c.c. of a special vaccine. This vaccine is now available, is very reasonable in price and has every warrant as to its efficaciousness from the very highest authorities.

The heads of dogs which it is desired be examined should be sent to the Massachusetts Department of Public Health, Wassermann Laboratories, Harvard Medical School, Longwood Avenue, Brookline, Mass. Suspected dogs should be observed in quarantine and when symptoms appear the head should then be sent in for examination. At this time the diagnosis by microscope (microscopic evidence Negri bodies being present at this time) can readily be made, whereas if sent in too early great delay may be caused by the necessity of injection of material into rabbits which in turn must be watched for symptoms.

OTHER BIOLOGIC PRODUCTS USED IN THE PREVENTION AND TREATMENT OF DISEASE.

By Robert N. Nye, M.D., Formerly Assistant Director, Division of Biologic Laboratories.

THERE are many antitoxins, serums and vaccines used more or less extensively as therapeutic and prophylactic agents which are not manufactured by the Antitoxin and Vaccine Laboratory of the Massachusetts Department of Public Health, either because the demand is insufficient for production on an economical basis or the results obtained in their use do not warrant production.

A list of the more important of these various biologic products is given below together with a brief discussion as to method of preparation, indications for use, method of administration and merit. The majority of these products are manufactured by the larger commercial laboratories and can be obtained from their branch offices.

Antitoxins.

There are several antitoxins which have been produced in more or less experimental quantities by various laboratories interested in these particular problems. Among those which have proven efficacious are the antitoxins which neutralize the exotoxins produced by *Bacillus botulinus* (*Clostridium botulinum*), and the antivenins which neutralize the two large groups of snake venom. It is claimed that efficient antitoxins can be produced to counteract the exotoxins produced by *Bacillus Welchii* and other anaërobic gas producers, but since the production of true exotoxins by these organisms seems to be at present debatable, it is doubtful if these serums should be classed as true antitoxins.

For the rare cases in which the administration of one of the above mentioned antitoxins seems advisable the physician may be able to procure such by application either to the State Department of Public Health or to the experimental laboratories of the medical schools. Inasmuch as these products are manufactured purely in an experimental way and since there is no generally adopted standard of potency it is impossible to give their exact dosage.

Antibacterial Serums.

In addition to antipneumococcic and antimeningococcic serums there are many other antibacterial serums which are available for treatment. Some of these are obtained from horses or other animals, and are produced by immunization with the various specific causative organisms. There is another group in which the etiology of the various diseases is either unknown or doubtful. For treatment of diseases falling into this last group the so-called convalescent serums are employed, that is, serums obtained from individuals who have already recovered from an attack of the disease in question.

With the administration of antibacterial serums in general many precautions have to be taken, particularly when intravenous injection is the method of choice. Serums, such as antistreptococcic and antidysenteric, obtained from horses will cause serious complications, and even death, when injected into individuals hypersensitive to horse protein. If the administration of such serums seems desirable, all patients should be tested for their susceptibility to horse protein by the intradermal injection of a small amount of the serum or normal horse serum (0.1 to 0.2 c.c. of a 1:100 dilution). In the absence of local reaction (wheal formation and erythema) within twenty or thirty minutes, one-half to one cubic centimeter of the serum should be given subcutaneously. If no general reaction occurs within one hour following the subcutaneous injection, the serum may be given intravenously without hesitation. In general all serum for intravenous use should be diluted with an equal amount of sterile physiological sodium chloride solution, the temperature of the diluted serum should be approximately that of the body, and the first fifteen cubic centimeters should not be administered at a faster rate than one cubic centimeter per minute. A subsequent injection of foreign serum should not be given after a period of two weeks has elapsed since the previous injection without carefully retesting for hypersensitiveness. At least one fatal result has been known to follow such a case of artificial hypersensitiveness in which no preliminary intradermal and subcutaneous tests were made.

In obtaining convalescent serums all donors should have a Wassermann test performed, and only those with undoubted negative reactions should be used. Theoretically pooled or individual serum should not be given to a patient if the red blood corpuscles of the latter are agglutinated by the serum. As a matter of fact the injected serum is so diluted by the blood volume of the recipient that the few corpuscles agglutinated are of no importance unless there is a marked anemia. For practical purposes it seems sufficient to disregard compatibility tests unless the red blood corpuscle count is below 1,000,000 per cubic millimeter.

In all instances of serum treatment the general medical care of the case should not be slighted. As a rule the usual supportive medical measures are even more important than serum treatment. The latter is only another form of supportive treatment which happens to be specific. It is merely another means of aiding the body in throwing off infection in its own natural way.

1. *Antistreptococcic Serum.* — The commercial antistreptococcic serums are obtained from horses by the repeated injections of numerous strains of dead and eventually live streptococci. These so-called "polyvalent" serums are supposed to be effective in all sorts of streptococcic infections. As a matter of fact it has been shown experimentally that the use of a large number of strains produces a serum weaker towards any individual strain than serum produced by immunization with this single strain.

This serum can be used to bathe superficially freely opened streptococcic infections such as a cellulitis of the arm or leg following wound infection. Doses of 15 to 30 cubic centimeters may be given intraspinously combined with intramuscular or intravenous injections in cases of streptococcic meningitis. In empyemata due to streptococci 30 to 50 cubic centimeters may be injected intrapleurally following aspiration. In streptococcic bacteriemia the serum may be given intramuscularly or intravenously in doses of 20 to 50 cubic centimeters and 50 to 100 cubic centimeters respectively. In all cases there should be a definite bacteriological diagnosis. Tests for hypersensitiveness to horse protein should always be done.

The results obtained with antistreptococcic serums are disappointing, and do not warrant their general use in view of the additional tax upon an already extremely sick patient occasioned by the administration of large amounts of foreign protein. This objection cannot be raised with regard to the treatment of superficial infections, and serum bathing should be tried for the relief of pain (especially in erysipelas) and for its possible local antibacterial effect.

2. *Antidysenteric Serum.* — There are two large groups of dysentery bacilli, Shiga and Flexner, which vary considerably in their serological and bacteriological reactions. For this reason it is customary to immunize horses to either one group or the other. A mixture of the two serums is the so-called "polyvalent" serum and should be used in all cases except those in which an accurate bacteriological diagnosis as to the group of dysentery bacilli can be obtained.

The serum can be administered to all cases of bacillary dysentery. The earlier in the disease the serum is administered, the better the results obtained. In fact, in chronic cases very little good, if any, can be accomplished by serum treatment. The serum is usually given subcutaneously in doses of 10 to 20 cubic centimeters depending upon the age of the patient. In severe cases 50 to 100 cubic centimeters may be given intravenously. If the response is not marked the dose may be repeated in 12 to 24 hours, and again in 48 hours. The usual precautions against hypersensitiveness to horse protein must be taken.

In institutions a threatened epidemic may be abated by the prophylactic injection of small amounts (5.0 cubic centimeters) of the polyvalent serum. It should be remembered that the protection afforded lasts only about two to three weeks. The marked improvement in clinical and subjective symptoms following serum injections and the marked decrease in mortality rate among serum treated cases attest to the merit of the product.

3. *Antianthrax Serum.* — In those localities where cases of human anthrax are relatively numerous excellent results have been obtained by the treatment of such cases with antianthrax serums. This applies not only to the superficial lesions ("malignant pustules"), but also to cases of septicemia. The figures from several different countries show a reduction in mortality attributed to the use of serum from around 26 per cent to 7 per cent or less. The results obtained in this country following serum treatment are most encouraging and are in agreement with those previously cited.

The technic of administration varies considerably, but intravenous and local injections seem to be the methods of choice. From 20 to 100 cubic centimeters may be given intravenously depending upon the severity of the case, and this should be accompanied by several small local injections (1 to 3 cubic centimeters) into the borders of the pustule. This may be repeated in 24 hours, if necessary. The usual precautions of intravenous serum injections must be carefully carried out, particularly the testing for protein hypersensitiveness.

4. *Antigonococcic Serum.* — In the treatment of acute and chronic lesions due to the gonococcus it seems to be quite generally accepted that the use of antigonococcic serums produces little or no effect upon the various pathologic processes. It is true that in cases of acute gonorrheal epididymitis the intramuscular administration of small amounts (5 to 10 cubic centimeters) of serum result in alleviation of pain and tenderness in about 50 per cent of the cases; but, the same results can be obtained with normal horse serum.

5. *Convalescent Acute Poliomyelitis Serum.* — Treatment of acute poliomyelitis by means of convalescent serum is hardly practical for the rare sporadic case, but should be seriously considered when an epidemic seems imminent or is present. The serum from individuals who have had an attack of the disease as long ago as 30 years may be used although better results are obtained with serum obtained from six weeks to two years after an attack. The donors should be in good health and should exhibit a negative Wassermann. Depending upon the age and weight of the donor from 300 to 700 c.c. of blood should be drawn under aseptic precautions from the median vein. The serum can then be obtained either by allowing the whole blood to clot or by defibrinating and centrifuging. The latter is more rapid and a larger yield is obtained, but it is somewhat more laborious.

The serum should be inactivated by heating at 55°C. for one hour. Sterility tests should be made on all lots. For immediate use it should be stored in sterile glass bottles without preservatives; but, if any appreciable time is to elapse before use, 0.2 per cent trikresol should be added.

The sooner in the course of the disease the serum is administered the better are the results. In fact, little, if any, good is accomplished by serum treatment after the febrile period has passed. The intraspinous dose should be governed by the amount of fluid withdrawn, *i.e.*, 10 cubic centimeters less than the fluid withdrawn unless the fluid is under markedly increased pressure. This should be followed by an intravenous dose, injecting about 40 cubic centimeters for children up to 2 years of age and increasing to about 100 cubic centimeters for children of 10 years. Serum which is tinged with hemoglobin should not be given intravenously but can be administered subcutaneously. Both intraspinous and intravenous injections can be repeated after twenty-four hours if the temperature has not approached normal.

A limited number of cases of the disease in epidemic form have been treated in this manner with excellent results.

6. *Convalescent Scarlet Fever Serum.* — This serum is obtained in the same manner and with the same precautions as the preceding convalescent serum, except that the donor's previous attack of the disease should preferably not antedate the bleeding of the donor by more than a few weeks or at most a few months. The difficulty in obtaining the serum warrants the limitation of its use to the severe cases. By injecting one dose of 50 cubic centimeters intravenously excellent results have been obtained in severe cases with this serum at the South Department of the Boston City Hospital.

7. *Convalescent Influenza Serum.* — Although quite widely used during the epidemic of influenza in 1918–1919, particularly in and around Boston, the administration of convalescent influenza serum to cases of influenza bronchopneumonias has not been accepted by the more conservative of the medical profession as a reliable means of therapeusis. In the early stages of the disease

favorable and encouraging results have been reported. As a rule the remarkable falls in temperature following the injection of the serum can be duplicated on the temperature charts of untreated cases.

VACCINES.

Vaccines with a few exceptions are used for prevention rather than for treatment. The process involved is that of active immunization, and the body requires a certain amount of time to react with the formation of "antibodies." This period of time excludes the use of vaccines as therapeutic agents except in certain chronic infectious lesions, such as furunculosis and acne vulgaris. In regard to these latter conditions it may be said that in general an autogenous vaccine is usually more effective than a homologous vaccine. And, again let it be emphasized that in the treatment of such cases general medical measures must not be overlooked.

1. *Acne Vaccines.* — The commercial acne vaccines consist of killed suspensions of either *Bacillus acnes* or a combination of this bacillus and staphylococci. The usual vaccine contains 40 million *Bacillus acnes* per cubic centimeter, while the combined vaccine contains 400 million staphylococci in addition. In true cases of acne vulgaris the staphylococcus part of the combined vaccine produces little, if any, effect. Vaccine therapy is usually more valuable in those types of acne vulgaris when the lesions are relatively deep seated. The initial dose of *Bacillus acnes* should consist of 3 to 5 million, and should be repeated in five to seven days depending on the reaction. If new lesions continue to appear after the third day the dose should be increased to 7 to 10 million, never over 15 million. If many new lesions appear within 48 hours the dose should be decreased and the interval increased. When therapeutic results are obtained the interval between doses should be lengthened to two, three and eventually four weeks.

2. *Staphylococcus Vaccines.* — In cases of furunculosis, chronic ulcerative skin lesions, and certain other superficial chronic suppurative processes due to staphylococcic infection, vaccine treatment will often be effective. In all cases an accurate bacteriological diagnosis should be obtained, and the vaccine should contain homologous strains. As previously stated the best results are obtained with autogenous vaccines.

These vaccines usually contain from 250 to 2,000 million killed organisms per cubic centimeter and the initial dose should consist of about 50 to 250 million. The injections should be repeated at three or five day intervals, gradually increasing the dose until there is a moderate local reaction.

3. *Streptococcus Vaccines.* — Streptococci vary so much from one another immunologically and serologically that the so-called "polyvalent" streptococcic vaccines are practically valueless. In fact it may be stated in general that all streptococcic vaccines should be autogenous. The use of such vaccines in subacute and chronic local streptococcic infections is sometimes successful. Their use in acute and general infections is distinctly contraindicated.

The killed suspensions are usually diluted so that they contain 50 to 400 organisms per cubic centimeter. The initial dose should be small, about 10 million. The injections should be repeated every three to five days and the dose gradually increased until there is a moderate local reaction. A dose should never be given until the reaction from the previous injection has subsided.

4. *Gonococcic Vaccines.* — Although there are a number of exceptions, the general consensus of opinion at the present time is that gonococcic vaccines are definitely without value in the treatment of acute and chronic gonorrheal urethritis. Undoubtedly brilliant results have frequently followed the treatment of certain gonorrheal complications, such as epididymitis and arthritis. However, the same marked symptomatic improvement can be brought about by the administration

of heterologous vaccines. In view of the rather severe reactions which frequently follow such nonspecific protein injections the use of vaccines in such cases does not seem warranted.

5. *Pneumococcus Vaccines.* — Recent experiments have shown that it is impossible to protect monkeys against pneumococcus infection by the subcutaneous injection of an amount of homologous killed vaccine which could safely be administered to man. Several large groups of individuals have received prophylactic injections of pneumococcus vaccines, and their subsequent histories as compared with similar unvaccinated groups have been carefully followed. Although the incidence of pneumonia among the vaccinated was much lower than among the unvaccinated during the first few months, this difference gradually diminished, and eventually disappeared. With the methods in use at the present time but little protection and no lasting immunity can be expected following the prophylactic administration of pneumococcic vaccines.

6. *Scarlet Fever and Influenza Vaccines and Vaccines for "Colds."* — In general in any infectious disease the human body is stimulated by the causative organism to the formation of specific antibodies, which assist in overcoming the attack, and which, if successful, often remain for a shorter or longer period to protect against further attacks of this disease alone. In successful vaccine treatment and prophylaxis specific antibodies are produced by each kind of vaccine or organism and these antibodies function identically with those produced by an attack of the disease itself. These facts demand that for successful treatment or prophylaxis in any disease we must use a vaccine made from the causative organism in order to produce the specific antibodies.

At present the etiology of scarlet fever and "colds" is unknown. The same may be said of influenza so far as the correlation of any of the constituents of the various vaccines to the etiology of the disease is concerned. Obviously from a theoretical point of view successful vaccine prophylaxis in these diseases is impossible notwithstanding certain claims to the contrary. Statistics obtained from large and carefully controlled groups under the supervision of impartial observers show that following the administration of such vaccines the incidence of subsequent disease is practically identical among the vaccinated and unvaccinated. However, it must be admitted that a certain number of satisfactory results have been reported following the prophylactic use of influenza and "cold" vaccines. Whether or not these can be attributed to the reaction of the body to the formation of antibodies against the various secondary invaders, which are contained in the vaccines used, remains to be proven.

7. *Cholera and Plague Vaccines.* — Under ordinary circumstances these two products are of only passing interest to the physicians of this district, and it is to be hoped that this state of affairs will continue. However, if either disease should threaten in epidemic form, it should be borne in mind that both of these vaccines afford a certain amount of protection following prophylactic injection. Plague vaccine is effective against the bubonic type of the disease, but not against the pneumonic type. Statistics from British India show conclusively that the disease incidences and case mortalities in both diseases are markedly lower in the vaccinated than in the unvaccinated.

With cholera vaccine two doses are given, the first containing 4,000 million heat-killed organisms and the second 8,000 million. With plague vaccine one dose — occasionally two — is given containing 5,000 million heat killed organisms.

8. *Pertussis Vaccine.* — No definite statement can be made as to whether or not pertussis vaccines are effective in preventing whooping cough or in influencing the disease. Of the many articles which have appeared during the last few years either commending or condemning the two procedures, the majority are in their favor. However, in one instance with a very large group of vaccinated children

using fresh and old vaccines in varying amounts, no protective value of the vaccine could be demonstrated by comparing the disease incidence of this group with that of a similar unvaccinated group. At least it has been proven from this great amount of work that no harm results from the injections. Because of the long duration of the disease vaccine therapy from a theoretical point of view is a reasonable procedure, provided of course that the Bordet-Gengou bacillus is the true etiologic factor.

For prophylaxis two or three doses are usually given containing from 500 to 2,000 million organisms. In treatment injections are given every other day in doses ranging from 100 to 300 million.

9. *Pollen, Food, and Other Extracts.* — These various products can be included under the heading of vaccines. Within the past few years they have been used extensively in the prevention and treatment of various allergic conditions, such as seasonal asthma (spring and fall hay fevers), bronchial asthma, food idiosyncrasies, etc., and in diagnosis for determining individual hypersensitiveness to foreign proteins. Many favorable and promising results have been reported.

Non-specific or Foreign Protein Therapy.

Under either one or the other of the above headings many articles have appeared recently relative to the treatment of disease by the administration of heterologous vaccines, normal serum, peptone, sodium nucleinate, milk, and bee stings. These reports have in the main dealt with the treatment of arthritis and typhoid fever. There is in addition a certain amount of literature relative to this sort of therapy as applied to gonorrheal complications, pneumonia, dermatological diseases, iritis, trachoma, diphtheria, anthrax, acute sepsis, tuberculosis, and syphilis. In regard to two of the above mentioned conditions, diphtheria and anthrax, it should be mentioned that it is hardly reasonable to adopt non-specific therapy when specific biologic therapy of definitely proved worth is available.

Following the injection, usually intravenously, of these proteins a febrile reaction follows which is thought to be essential for the treatment to be effective. This elevation in temperature is usually preceded by a chill, and is often accompanied by nausea and vomiting, particularly if the dose is large. Immediately following the injection there is generally a leucopenia which is followed by a polymorphonuclear leucocytosis reaching its maximum two to twelve hours following injection.

The mechanism of such therapy cannot be conclusively explained. Although many favorable and promising results have been reported, it must be acknowledged that we know very little about this sort of therapy and that it really must be considered in the experimental state.

STATE MANUFACTURE OF BIOLOGIC PRODUCTS.

I. The Policy.

By Eugene R. Kelley, M.D., Commissioner of Public Health.

THE reason for manufacture and free distribution of biologic products as a State activity is based on several considerations. It being granted that it is a proper and desirable function for the State to strive to protect and save the lives of its people from the ravages of communicable diseases, it is evident that one of the most effective means of achieving this purpose is by making biologic products, such as serums and vaccines, readily available to its citizens. The use of such products, based on their usual retail cost, would necessarily be restricted if they had to be paid for by private individuals. Campaigns against infectious diseases would be weakened unless these agents are gratuitously offered, while those already sick would be denied the benefits of these otherwise costly therapeutic agents. The wisdom of the State maintenance of these activities is evidenced by the continuing reduction in the morbidity and mortality rates of diphtheria, meningitis, smallpox, etc., in those states in which biologic products are distributed free.

THE COST.

Another consideration of no small moment is the great saving in money to the people of a state by this policy. There is no gainsaying the fact that efficiently operated governmental laboratories can manufacture and distribute biologic products at a cost far below the prices prevailing in the retail trade, and as a rule, considerably less than the wholesale prices charged by commercial laboratories. For example the output of the Massachusetts Antitoxin and Vaccine Laboratory for 1922, if purchased by individuals at the retail prices charged in pharmacies, would have involved a total expenditure of $355,000, while the 1922 appropriation for the maintenance of this laboratory in that year was $60,100.

CONTROL OF DISTRIBUTION.

A further advantage lies in the ability of a State Laboratory to insure physicians of the State a supply of freshly prepared products at their highest state of potency by setting shorter expiration dates on its products and by controlling the distribution, as well as by the recall of out-dated packages; while still another valuable feature consists in the close relationship thus established between the State Department of Public Health and the practicing physician — a relationship which broadens the profession's interest in public health problems, and brings with it a co-operation which could be secured otherwise only through a much greater expenditure of effort.

The Massachusetts Department of Public Health ever since taking up the manufacture of biologic products has maintained a policy of strict conservatism. Free from the need of showing any financial return for its products and therefore free from the urge of commercial competition, only those products have been manufactured which have survived the test of time and which have been proven to be therapeutically efficacious. Very few such products of highest therapeutic value have not been included in the list of products manufactured, either because of their limited applicability to isolated infections of low transmissibility, or because of a demand too small to warrant their production — as in the case of rabies vaccine or of tetanus antitoxin. From time to time new products will be included when their value is established. There should be and is no place in the State's program for the distribution of biologic agents of questionable value. All new products must have progressed far beyond the experimental state before their manufacture and distribution by the State can be justified.

The manufacture of biologic products is an enterprise which to be successful must be carried on in a most thoroughgoing and conscientious manner. The intermittent preparation of small quantities of this or that serum or vaccine as an avocation of workers principally engaged in other applications of bacteriology or serology has disadvantages which frequently lead to disappointing, if not to disastrous results. A permanent well-trained and efficient personnel under the close supervision of experienced specialists in immunology, working in a thoroughly equipped, well organized and adequately financed laboratory, with the welfare of the patient the only motive always in mind, is the prime requisite for the proper manufacture of biologic products. Such conditions obtain in the Massachusetts laboratory.

LICENSING OF PRODUCTS.

All commercial laboratories manufacturing biologic products and offering them for sale in interstate traffic are obliged by law to meet requirements specified by the Treasury Department of the United States Government. Through the United

States Public Health Service, exacting and rigid regulations are promulgated covering the plants, equipment, organization, personnel and conduct of these laboratories, their methods of preparing and testing all products, and their system of distribution as well. Such establishments are regularly inspected by officers of the Public Health Service, and their various products are tested for purity and potency at the United States Hygienic Laboratory in Washington. Those laboratories meeting these requirements are then granted yearly operating licenses.

Although all products of the laboratory of this Department were distributed without charge within the State and none entered into interstate traffic, the laboratory therefore being exempt from the operation of the law, the Massachusetts Department of Public Health, in 1917, upon the initiative of Dr. M. J. Rosenau, applied for and after due inspection was granted a federal license covering the manufacture of diphtheria antitoxin, vaccine virus and anti-typhoid vaccine. Since that time a further license has been granted for antipneumococcic, and anti-meningococcic serums, anti-paratyphoid vaccines, materials for the Schick test and diphtheria toxin-antitoxin mixture. Even though this license is not required by law — and so far the Massachusetts Antitoxin and Vaccine Laboratory is the only state laboratory to which a license has been granted — the advantages accruing from its possession far outweigh the extra effort and expense necessitated in meeting the exacting requirements. Not only are the various technical processes improved by the specifications imposed, but the purity and potency of the products are raised and safeguarded by the system of tests required. The State, therefore, is thus enabled to assure the medical profession that its serums and vaccines are produced under the best conditions and by the most approved methods, and that in purity and potency the same high standard is maintained as set by the federal government for all manufacturers of biologic products selling their products under interstate commerce restrictions.

II. The Antitoxin and Vaccine Laboratory.

By Benjamin White, Ph.D., Director, Division of Biologic Laboratories.

1. *History.* — The manufacture and free distribution of biologic products by the Commonwealth of Massachusetts dates from 1894. In the autumn of that year Dr. H. P. Walcott, then chairman of the State Board of Health initiated the production of diphtheria antitoxin in a laboratory at the State House, the actual manufacture being carried out by Dr. J. L. Goodale. The horses were then quartered in a stable on the grounds of the Bussey Institution of Harvard University at Forest Hills. Some serum was distributed in the spring of 1895, and in the summer of that year, Dr. Theobald Smith, having fitted up a number of laboratory rooms in the Bussey Institution, took charge of the work.

For a period of nine years the preparation of diphtheria antitoxin was carried on in the Bussey Institution under the distinguished personal direction of Doctor Smith, during which time he not only supervised the routine work but also engaged in valuable and fruitful investigations directed toward the improvement of the serum, and the greater accuracy of standardization.

With the increasing demand for serum, the quarters at the Bussey Institution became inadequate, and at the same time the State Board of Health, realizing the importance of some direct supervision and control over the smallpox vaccine virus used in the State, decided to add the manufacture of this product to its activities. Legislative authority for the production and free distribution of antitoxin and vaccine lymph was given through the enactment of chapter 480 of the acts of 1903.

In that year the Corporation of Harvard University came to the aid of the State and agreed to use a portion of the land of the Bussey Institution, and through the munificence of Mr. George F. Fabyan began the construction of the buildings now occupied by the Antitoxin and Vaccine Laboratory. The new laboratory was occupied in July, 1904, when the production of vaccine virus was started, and later in September the first lot was issued.

Doctor Smith continued the direction of this work until August 1, 1914, during which time marked improvements were made in the potency and quality of the antitoxin produced and a marked increase in the amounts distributed took place. For a short time (during 1898–1899) tetanus antitoxin was prepared and distributed, but on account of the small laboratory quarters and the need and difficulty of properly separating this from the other laboratory activities, its preparation was abandoned. The preparation of smallpox vaccine virus was actually carried on and the distribution of this product rose from a total of 2,498 doses in 1904 to 111,572 in 1914. Massachusetts was the first state to inaugurate its own preparation and free distribution of vaccine virus. In 1908 diphtheria antitoxin was first distributed in concentrated form. In 1913 the manufacture of antimeningococcic serum was begun.

During Doctor Smith's term as Director, the Antitoxin and Vaccine Laboratory gained an enviable position for the quality of the products manufactured, but more especially for the high character of its contributions to the science and practice of immunology. Upon the resignation of Doctor Smith, one of his assistants, Dr. Herbert R. Brown was appointed Acting Director until February, 1915, when Dr. Milton J. Rosenau was made Director. Doctor Rosenau brought to the State Laboratory the high prestige in immunology gained as Director of the Hygienic Laboratory of the United States Public Health Service, as well as a rich experience in preventive medicine and immunology. During his incumbency materials for the Schick test were first prepared and instruction offered in the use and interpretation of this test. Bacterial vaccines made from typhoid and paratyphoid bacilli were manufactured and distributed (1917) under authority first granted under Chapter 190 of the general acts of 1917, which acts also covered other biologic products. Antipneumococcic Serum (Types I and II) production began in 1917. Diphtheria toxin-antitoxin mixture was first distributed in 1918.

On March 20, 1917 the Antitoxin and Vaccine Laboratory was granted a license by the Treasury Department of the United States to manufacture and distribute diphtheria antitoxin, vaccine virus and bacterial vaccine made from typhoid bacillus and later this license was extended to cover bacterial vaccines made from paratyphoid bacilli A and B. This license, at the present time, authorizes also the production of Schick outfits, diphtheria toxin-antitoxin mixture, antipneumococcic and antimeningococcic serums.

In June, 1920, Dr. Benjamin White, formerly in charge, under Dr. William H. Park, of the Antitoxin Laboratories of the New York City Department of Health at Otisville, N. Y., was upon the resignation of Doctor Rosenau appointed Director of the Division of Biologic Laboratories and still continues the directorship of the Antitoxin and Vaccine Laboratory.

2. *The Plant.* — The buildings are beautifully situated on the grounds of the Bussey Institution of Harvard University, at 375 South Street, Forest Hills Station, Boston. The location adjoins the extensive grounds of the Arnold Arboretum, and is admirably suited for the purpose, because of the freedom from dust and dirt, and its easy accessibility. The laboratory is reached by the elevated or the New Haven Railroad (Forest Hills Station), by the Jamaica Plain and Spring Street surface cars, and by automobile by the Metropolitan Parkway (Arborway). In addition to the laboratory building with its offices, sterilizing, serum, vaccine, packing, storage and other work rooms and its calf stable and operating room, there is a brick stable accommodating twenty-seven horses with rooms for small animals, and a quarantine stable for six horses, with a necropsy room.

The laboratory is adequately equipped with modern bacteriological, serological and chemical apparatus.

3. *Personnel.* — The personnel consists of the Director, Assistant Director, 2 bacteriologists in charge of the various departments, 3 assistant bacteriologists, 1

clerk-stenographer, 10 laboratory assistants and 6 laborers. All are Civil Service employees and many have long and faithful terms of service to their credit.

4. *Production.* — The following table shows the volume and kinds of products distributed during the last three fiscal years:

	1920.	1921.	1922.
1. Diphtheria Antitoxin: Distributed (1,000 unit doses)	218,227	261,024	336,730
2. Antimeningococcic Serum: Distributed (doses)	3,585	3,444	4,296
3. Antipneumococcic Serum: Distributed (doses)	444	649	721
4. Smallpox Vaccine: Distributed (capillary tubes)	189,064	197,733	189,215
5. Typhoid-Paratyphoid Vaccine: Distributed (doses)	49,191	55,804	66,959
6. Schick Outfits: Distributed (doses)	3,150	54,750	161,750
7. Diphtheria Toxin for Schick Test: Distributed (c.c. in bulk)	–	32	155½
8. Diphtheria Toxin-Antitoxin Mixture: Distributed (doses)	3,614	9,414	96,407
9. Normal Serum· Distributed (c.c.)	–	9,788	4,665

5. *Expenditures.* — The expenditures for the past three years are as follows:

	1920.	1921.	1922.
Personal services	$23,094 16	$28,610 41	$30,690 50
Expenses	23,742 37	24,500 46	29,360 80
	$46,836 53	$53,110 87	$60,051 30

6. *Distribution.* — All products are distributed to health officers and physicians in the Commonwealth free and under no circumstance are they to be sold or a charge made to patients for them by those receiving these products.

All products can be obtained from the offices of local boards of health or from the Department of Public Health, State House, Boston. In Boston a supply may be found at the collecting stations of the Boston Department of Health, and in emergencies at the following hospitals:

Boston City Hospital, 818 Harrison Avenue, Boston.
Carney Hospital, Old Harbor Street, South Boston.
Massachusetts General Hospital, Fruit Street, Boston.
Massachusetts Homœopathic Hospital, East Concord Street, Boston.
Peter Bent Brigham Hospital, 721 Huntington Avenue, Boston.
St. Elizabeth's Hospital, 736 Cambridge Street, Brighton.
Strong Hospital, East Boston.

The receiver is expected to call for supplies or to pay postage or express charges, and only in exceptional cases can orders be delivered by State messenger.

7. *The Laboratory and the Physician.* — The Antitoxin and Vaccine Laboratory functions for the people of the Commonwealth through the agency of the medical profession. In order that its possibilities for service may be realized to the fullest extent, the concurrence of physicians is necessary. It is the purpose of this special

number of the "Commonhealth" to give the members of the profession a more intimate acquaintance with the laboratory, its work and its products, and to give him the most recent and authoritative information available concerning the use of serums and vaccines. The endeavor is made to supply physicians with biologic products of the best possible quality, and along with them adequate directions for their use. The greatest benefit to the patient can only be derived from these products when there is a close co-operation between the physician and the laboratory. To this end the Director takes the liberty of pointing out ways in which the physicians may more successfully employ these biologic agents, and at the same time aid the State in its campaign against disease and in its efforts to give this service at the lowest possible cost.

A supply of any product should be ordered or taken from a distributing station sufficient only for immediate needs, while distributing agencies and institutions are urged to carry at the maximum a one month's supply. If this is done the physicians will receive products soon after their release and therefore at their height of potency and therapeutic action. Diphtheria antitoxin, for example, when first issued contains, according to federal regulation, a twenty per cent excess of units over the number indicated on the label, and although the unitage specified will be contained in the vial at the expiration date, the patient should be given the added benefit of the excess units contained in the recently released lot.

Every package and all vials and ampoules have stamped on them a lot number, a preparation date and an expiration date or date after which the package should be returned. The physician should always keep a record of the lot number of the product. He should observe the preparation date so that he may assure himself that he is using a freshly prepared lot. The expiration date should always be noted, because the potency of the product is not guaranteed beyond the time indicated. An earnest request is made that all products not used before the expiration date be returned from the source whence they were obtained so that this Department may salvage the containers and thereby effect a considerable saving in expense.

The care of biologic products is another important factor. In one product — vaccine virus — a living virus is present and all contain substances exceedingly sensitive to heat, light and age. Therefore all of them should be kept as cold as possible until the time of administration of their full action is to be obtained. Vaccine virus especially should be kept continuously in an ice cold place.

All products should be employed according to the directions contained in each package. While this Department has no intention of directing medical treatment, it, however, desires to recommend the way in which its products can be used to the greatest advantage. Accordingly it has prepared the circulars of directions with great care and has submitted them to the highest authorities in this country. As they now stand, therefore, they represent the best obtainable opinion on the administration of these various serums and vaccines, and in addition they contain specific directions relating to the packages and products as prepared by this laboratory. The Department earnestly desires to maintain this service at its highest possible efficiency. It therefore welcomes reports from physicians on the results obtained from its products, and as eagerly welcomes constructive criticism. The aim is ever to supply preparations of high potency in a form of container convenient to the physician and to supply such directions as shall be most helpful in the prevention and treatment of infectious diseases.

The Antitoxin and Vaccine Laboratory is State property. It is open to visitors on week days from nine until five and on Saturdays from nine until twelve. During those hours, or at other times by special appointment, all the processes in the manufacture and testing of biologic products will be gladly demonstrated and explained. Special demonstrations will be given for medical or lay societies, or other civic and social organizations. Teachers in schools and colleges are invited to bring their classes, and appropriate talks and exhibitions will be held. The members of the staff are available at convenient times for talks and lectures, both popular and technical, or subjects relating to preventive medicine and immunity. Students are received for longer or shorter periods of instruction in theoretical and practical immunology and facilities are offered for original investigative work in bacteriology and serology.

The State Antitoxin and Vaccine Laboratory belongs to the citizens of the Commonwealth. It bespeaks their interest and co-operation so that it may serve them well.

Brief Summary of Information concerning Biologic Products manufactured and distributed by the Massachusetts Department of Public Health.

1. *License.* — All products are manufactured and distributed under License Number 64 granted by the United States Treasury Department.

2. *Free Distribution.* — All products are distributed free within the State and under no circumstances are they to be sold, except

3. *Sale of Products.* — Parties in other states may obtain these products at approximately cost prices when any surplus supply is available.

4. *Products manufactured:*

Diphtheria antitoxin: 1,000, 3,000, 5,000 and 10,000 unit packages.
Antimeningococcic serum: 15 c.c. vials.
Antipneumococcic serum (Type I): 100 c.c. bottles.
Smallpox vaccine virus: 3, 5, 10 and 25 tube packages and in vials.
Bacterial vaccines made from typhoid and paratyphoid A and B bacilli: 1 c.c. ampoules and 20 c.c. vials.
Diphtheria toxin for Schick test (complete Schick outfits): for 100 tests.
Diphtheria toxin-antitoxin mixture: 1 c.c. ampoules and 20 c.c. vials.
Horse serum, defibrinated blood and other products for scientific purposes.

5. *Where Products can be obtained.* — At all local board of health offices; in Boston at all distributing stations of the City Department of Health. Emergency supplies (for distribution only when other stations are closed) at —

Boston City Hospital, 818 Harrison Avenue, Boston.
Carney Hospital, Old Harbor Street, South Boston.
Massachusetts General Hospital, Fruit Street, Boston.
Massachusetts Homœopathic Hospital, East Concord Street, Boston.
Peter Bent Brigham Hospital, 721 Huntington Avenue, Boston.
St. Elizabeth's Hospital, 736 Cambridge Street, Brighton.
Strong Hospital, East Boston.

Other orders should be sent to the Department of Public Health, Room 527, State House, Boston (telephone Haymarket 4600, Lines 38 and 39), or in great emergency to the Antitoxin and Vaccine Laboratory, 375 South Street, Jamaica Plain (Forest Hills Station), Boston (telephone Jamaica 0079-W).

6. *Size of Orders.* — Limit orders to amounts needed for 10 day periods, and thus use fresh products in the highest state of potency.

7. *Care and Use of Products.* — Keep all packages and containers continuously in an ice cold place. Keep a record of the lot number stamped on each label. Read circular of directions accompanying each package. Use no products after the indicated expiration date on the label — return them to your distributing station.

8. *Information concerning Products and their Use.* — Communicate with the Director, Division of Communicable Diseases, Department of Public Health, State House, Boston (Haymarket 4600) or the Director, Division of Biologic Laboratories, Antitoxin and Vaccine Laboratory, 375 South Street, Jamaica Plain, (telephone Jamaica 0079-W).

9. *Visitors* are welcome at the Antitoxin and Vaccine Laboratory, 375 South Street, Jamaica Plain (Forest Hills Station).

THE COMMONHEALTH.

Quarterly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Frances Klein, S. B., Associate Editor.
Room 546, State House, Boston, Mass.

Massachusetts Health Conference. — The first Massachusetts Health Conference has come and gone. Held at Springfield, April 26–28, it marked the beginning, it is hoped, of even greater unity among our state officers interested in health. It is further to be hoped that a practical result will be some curtailment of meetings which are fast becoming too numerous for many of us to keep up with. Some day some efficiency expert will make a study of health meetings. Whatever his conclusions, his report will make interesting reading. He may find that like Dickens' Podsnap we often "rally round" without always being exactly clear as to what the rallying is all about. At any rate anything which will lessen the number of meetings without seriously impairing the quality of work done will be a blessing to the overburdened health official and enable him to catch up on his thinking.

Great credit belongs to the Massachusetts Tuberculosis League for taking the initiative in promoting this conference and for making its annual meeting a part of the conference. Probably in another year, other organizations will also have their annual meetings coincide with the date of this Health Conference since in all probability the latter will be an annual event.

Cancer Hospital.— A bill was introduced into the Legislature this year providing for the establishment of a cancer hospital which should be maintained at the expense of the State and under the supervision of the State Department of Public Health. This bill did not pass, and rightly enough we think. But the issue raised ought to be met in some more sound way, for the need which gave rise to the bill is a real one.

There are available at the present time in Massachusetts — so far as can be ascertained — a little over 100 beds for cancer cases. Some of these are for women only. Some of them are not available for hopeless cases. In the face of over 4,000 cancer deaths yearly in this State, many of them among the poor, this bed provision is grossly inadequate.

It does not follow that the State should be the agency to expend money for the purpose of meeting this general need. For various reasons, the discussion of which would lead us too far afield, the State should probably not be the agency. Here, however, is a definite opportunity for private philanthropy, unequalled in its humanitarian appeal.

Health Work in the Newton Schools. — In four years the malnutrition in the Newton schools has been reduced from 38% to 7%. This means that of every hundred children there are now only 7 who are more than 10% underweight as compared with 38 children four years ago. This record is quite remarkable, and makes it seem very well worth while for educators to look into the system of health teaching in the Newton schools.

And yet what Newton is doing is very simple. Miss Bragg, Assistant Superintendent of schools, suggests the program and checks up on results; the teachers introduce the health teaching through English, drawing and special "health corners" in the classrooms. The enthusiasm of the children is maintained through competition — by actual division into three groups according to weight; the parents are notified once a month of their children's weight, and they respond with real interest.

This system is successful partly because it is so simple, but mostly because there is active co-operation between teacher, pupil, and parent. The health work is being received not as an imposition, but as a privilege.

Infant Welfare Commission, Fall River. — Mayor Talbot of Fall River has recently appointed an Infant Welfare Commission. The personnel of this commission is as follows:

Thomas F. Burns, M.D., *Chairman.*
Thomas Almy, M.D.
George C. King, M.D.
Jean N. Normand, M.D.
Joseph D. Milot, M.D.
Frank L. Larkin, *Secretary.*

An arrangement whereby the secretary of the Fall River Health Department serves also as secretary of the newly established Infant Welfare Commission should aid materially in bringing about a close correlation between the plans of the new Commission and the established program of the Health Department.

A Case of "Practice What You Preach."— Nutrition workers have, since time immemorial, been preaching against candy and cake, but only too often have they made it easy for youngsters to spend their pennies on sweets.

Mrs. Sandwall, teacher of Cookery in the Newton Junior High School, has an opportunity through her lunch room to set standards of diet, and to put her theories into practice. She is doing it. There is no candy on sale in the Newton Junior High lunch room. There are hot dishes — such as creamed soups and macaroni and cheese — and there are salads, and sandwiches — made with dark bread — and, too, fresh fruit and milk. The children seem to enjoy their lunches — perhaps partly because they help cook some of the simple dishes in cooking class. However, the faculty seems equally enthusiastic. The lunch room is not run for profit.

Choice of food is very much a matter of habit. A whole race lives on polished rice, and develops nutritional deficiency diseases; a whole nation lives on sweets and pastry, and develops decayed teeth. It is the job of nutrition workers to teach, in practice as well as in theory, good food habits which will develop wholesome bodies and minds.

The American Physical Education Association Conference. — There are several things we get out of a good conference — one is a clear outline of the latest accepted ideas on the subject being presented; another is an opportunity for discussion of individual problems with a large group of experienced persons. The American Physical Education Association Conference gave us all of that — but more, a spirit of good will and comradeship, an atmosphere of good sportsmanship, and a realization that co-operation is keenest among those who have learned how to play.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of January, February and March, 1923, samples were collected in 107 cities and towns.

There were 872 samples of milk examined, of which 174 were below standard, 16 samples had the cream removed, and 36 samples contained added water.

There were 695 samples of food examined, of which 114 were adulterated. These consisted of 3 samples of butter which were rancid; 3 samples of cream which were low in fat; 7 samples of eggs, 2 samples of which were sold as fresh eggs, but were not fresh; and 5 samples were cold storage eggs not properly labeled; 1 sample of vanilla extract which contained coumarin; 9 samples of maple sugar which contained cane sugar; 4 samples of maple syrup which contained cane sugar; 78 samples of sausage, 55 samples of which contained starch in excess of 2 per cent; 16 samples contained coloring matter, 1 of which also contained starch in excess of 2 per cent; 6 samples contained sodium sulphite; and 1 sample was decomposed; 1 sample of meat, and 1 sample of chocolate, both of which were decomposed; 3 samples of olive oil which contained cottonseed oil; and 4 samples of vinegar, 1 sample being labeled cider vinegar but was not; another sample which was made other than by fermentation, and the other 2 samples were low in acid.

There were 111 samples of drugs examined, of which 41 were adulterated. These consisted of 23 samples of Jamaica ginger which were not double strength; 2 samples of spirit of camphor, and 16 samples of spirit of nitrous ether, all of which did not conform to the U. S. P. requirements.

The police departments submitted 1,456 samples of liquor for examination, 1,386 of which were above 2.75% in alcohol. The police departments also submitted 60 samples of poisons for examination, 29 of which were morphine, 2 strychnine, 3 opium, 1 heroin, 9 cocaine, and 16 samples examined for poison with negative results.

There were 60 hearings held, and 27 warnings issued, pertaining to violations of the food and drug laws.

There were 81 convictions for violations of the law, $1,740 in fines being imposed.

Frank Olivera, Augustine Packeco and Charles H. Chace, all of Swansea; Manuel Almedia of Dartmouth; Manuel Borgess of Westport; Joseph Beaupre of Acushnet; Joseph F. Matti and Manuel J. Dias, Jr., of New Bedford; Walenti Szlosk of Southbridge; Lewis R. Wallace of Sudbury; Peter D. Gavesar and John K. Yalinis of Springfield; and Fred F. Gibbons of Framingham, were all convicted for violations of the milk laws. Manuel Almedia of Dartmouth appealed his case.

Ovilla Beauchamp of Holyoke; Myer Kaplan of Pittsfield on 2 counts; Joseph Kohn, Alexander Kotaski and Alexander Palmer, all of Salem; Eastern Provision Company on 4 counts, John Baron and Michael Borowick, each on 3 counts, all of Fall River; Carl A. Weitz on 2 counts, Morrison & Schiff, Incorporated, Boston Sausage & Provision Company, Phillip W. Rounsevell, Benjamin Folsom, Phillip Epstein, and Massachusetts Preserves Company, all of Boston; Truelove Taylor of Milford; John Snigorski of Lawrence; David Almond of Lowell; Louis Rodzik of Worcester; Louis Greenberg of Attleboro; Anton Ruether of Williamstown on 2 counts; Michael Gritz, Herman Neuza, John Swistak, and Aldemar Turgeon, all of Adams; and Frank Bartz of South Boston, were all convicted for violations of the food laws. Boston Sausage & Provision Company, and Carl A. Weitz on 2 counts, both of Boston; and Michael Gritz of Adams, all appealed their cases.

Michael Fossillo and Sarkis Korkorian of Newburyport; Phillip W. Jenks on 2 counts, Michael E. Joseph, John Massimiano, Joseph Peters, Milhem N. Simon, Dominick Gigliotti, Max Goodman, Christopher Hesse, and Antonio Intelisano, all of Pittsfield; Ellis George on 2 counts, Joseph Brien, Frank Charron, Louis Cramer, Henry Kronick, William Kronick, Frank Shaw and Max Roy, all of North Adams; Waldo B. Brown and Joseph George of Gloucester; Kalil Matta and John

O. Torppa of Gardner; Harry Lerer of Lawrence; Clarence A. Gordon of Fitchburg; and Rebecca Crock and Sarah Dietlers of Brockton were all convicted for violations of the cold storage laws. Rebecca Crock and Sarah Dietlers of Brockton both appealed their cases.

First National Stores Ltd., of Springfield was convicted for false advertising.

David Gold and Joseph Rudnick of Springfield; and Elie Belleville of Dracut, were convicted for misbranding.

Leo L. Elbaum of Boston; and Louis W. Reycroft of Cambridge, 2 cases, were convicted for violation of the drug laws. Louis W. Reycroft of Cambridge appealed his two cases.

Harry Cradleman of Greenfield on 2 cases; Byron Eddy of Webster; Hyman Goodman of New Bedford; Otis N. Downing of Mattapoisett; and James R. Reid of Wakefield, were all convicted for violations of the slaughtering laws. Hyman Goodman of New Bedford, Otis N. Downing of Mattapoisett, and James R. Reid of Wakefield, all appealed their cases.

William J. Spanner of Springfield; and White Star Mattress Company of Chelsea, were convicted for violation of the mattress law.

In accordance with Section 25, Chapter 111, of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 12 samples, by Mrs. Edward H. Chapin of Leominster; 6 samples each, by Frank Olivera, and Charles H. Chace; and 4 samples, by Augustine Pakeco, all of Swansea.

One sample of milk which had the cream removed was produced by Joseph F. Tucker of North Dartmouth.

Sausage which contained starch in excess of 2 per cent was obtained as follows: 19 samples from Globe Provision Company of Fall River; 3 samples each, from Herman Nenza of North Adams, and Morrison & Schiff of Boston; 2 samples each, from Nowak & Godek Company of Holyoke, Michael Gritz of Adams, Truelove Taylor of Milford, and Alexander Palmer of Salem; 1 sample each, from Elphage J. Remillard, and Greylock Sausage Company, both of Adams; Sichel Provision Company and Carl A. Weitz of Boston; L. B. Darling Company, Inc. of Worcester; Joseph Kohn, Alexander Kotaski, and Ludwig Buba, all of Salem; Zasadzinski & Rzeszotarski of Holyoke; Fall River Provision Company of Fall River; and David Almond of Lowell.

Sausage which contained coloring matter was obtained as follows: 4 samples, from Eastern Provision Company of Fall River; 1 sample each, from E. Greenbaum of New York; Sichel Provision Company, A. Gunsenhiser & Company, and Morrison & Schiff, all of Boston; J. Wexler of Chelsea; and Globe Provision Company of Fall River.

One sample of sausage which contained sodium sulphite was obtained from each of the following: Butterworth's Market of Salem, and Joseph Riley of Holyoke.

One sample of sausage which contained coloring matter and also contained starch in excess of 2 per cent was obtained from Morrison & Schiff of Boston.

One sample of sausage which was decomposed was obtained from the Brockton Public Market of Brockton.

One sample of vanilla which contained coumarin was obtained from Claude A. Bell, Tyngsborough.

One sample which was labeled cider vinegar but was spirit vinegar was obtained from Joseph Wojtanowicz of Holyoke.

One sample of vinegar which was made other than by fermentation and was not vinegar was obtained from Massachusetts Preserves Company of Boston.

One sample of olive oil which contained cottonseed oil was obtained from George Armenis Company of Boston.

Four samples of maple syrup which contained cane sugar were obtained from E. Belleville, Dracut.

There were thirteen confiscations, consisting of 366 pounds of rancid butter, 125 pounds of dried out beef, 674 pounds of decomposed calves' tongues, 75 pounds of dried out pork, 50 pounds of decomposed pork kidney, 25 pounds of decomposed oxtails, 69 pounds of immature veal, 50 pounds of decomposed ducks, 60 pounds of decomposed fowl, and 4,180 pounds of decomposed ciscoes.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of December, 1922: 405,660 dozens of case eggs, 63,370 pounds of broken out eggs, 1,377,661 pounds of butter, 4,481,106 pounds of poultry, 5,199,508 pounds of fresh meat and fresh meat products, and 1,154,710 pounds of fresh food fish.

There was on hand January 1, 1923, 2,909,010 dozens of case eggs, 1,108,985 pounds of broken out eggs, 5,869,984 pounds of butter, 6,220,438 pounds of poultry, 9,249,432½ pounds of fresh meat and fresh meat products, and 7,401,059 pounds of fresh food fish.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of January, 1923: 484,020 dozens of case eggs, 56,595 pounds of broken out eggs, 1,396,501 pounds of butter, 4,532,341 pounds of poultry, 8,884,790 pounds of fresh meat and fresh meat products, and 1,203,527 pounds of fresh food fish.

There was on hand February 1, 1923, 757,830 dozens of case eggs, 868,324 pounds of broken out eggs, 2,626,086 pounds of butter, 9,966,312 pounds of poultry, 15,199,907 pounds of fresh meat and fresh meat products, and 4,615,367½ pounds of fresh food fish.

The licensed cold storage warehouses report the following amounts of food placed in cold storage during the month of February, 1923: 154,680 dozens of case eggs, 81,407 pounds of broken out eggs, 749,012 pounds of butter, 1,924,987 pounds of poultry, 5,457,668 pounds of fresh meat and fresh meat products, and 695,093 pounds of fresh food fish.

There was on hand March 1, 1923, 26,040 dozens of case eggs, 660,963 pounds of broken out eggs, 1,606,105 pounds of butter, 10,622,208 pounds of poultry, 18,313,754 pounds of fresh meat and fresh meat products, and 2,519,019 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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FOREWORD.

By Edward Elwell Whiting.

OF the many truths in the American Declaration of Independence none is nobler, and none is less adequately protected, than the mighty assertion that all are created equal. All men, and all women, have the common fact of birth. All enter this world with the potentialities of life. As they come to school age, a wise government, made wise by the integrity of freedom, grants them the equal opportunity of education. As they grow older, wise laws protect them in industry, against exploitation by the greedy. Laws are devised that living quarters may be safe, that the dangers of fire and other catastrophe may be minimized. About women in factories and shops we place what appears to be wise protection. Institutions are established and maintained to safeguard against the mischances of life, and for the alleviation of physical suffering. In countless ways the honesty and generous impulses of this country have sought to protect that equality which we were, a century and a half ago, guaranteed in the Declaration of Independence. But for the infant thrust into life, for the mother who bears him, what is the measure of equality?

Who would plant a tree and leave it to grow crooked, and then at some later time undertake to make it symmetrical and strong? Who would neglect a litter of puppies until quarter grown, and then undertake to make of them prize-winners? What artist would take a clean canvas and overturn upon it, without order and without design, a confusion of fine colors, and then later on seek by daubing hither and thither in the waste to lift from that welter of loss a great picture? Who would assemble a discord of instruments out of tune, and endeavor to produce a symphony?

But what colors and harmonies of humanity are jumbled and thrown to waste in the years of infancy!

The oldest and finest sentiment in the history of the race is the love of a mother for her child. It is the absolute unselfishness of sacrifice. No state can in honor, or in safety, ignore that sentiment, or falter in making it effective for the public good.

Wise laws derive their wisdom from accurate reflection of righteous public desires. Enlightened governments receive their inspiration from the intelligence of the people who constitute them. The just powers of governments are born in the consent of the governed. "Public opinion" is the collective authority of many individual opinions.

By wise laws, through the operations of enlightened governments, employing the powers of common consent, public opinion has an opportunity to utilize, and a duty to perform, in making good the guaranty of human equality offered in the inspired days of the American Declaration of Independence.

There has been developed to a high degree, within recent years, a public realization of the duty of society to the infant and the mother. How this duty may best be performed, not all agree. That in some way the right of the mother to bear and rear her children decently, and the right of the child to have a fair chance at life must be made secure, is granted. This is the great step gained towards making effective a noble interpretation and application of the thought that all are created equal.

The right to proper medical and surgical care, the right to intelligent nursing, the right to clean living conditions, the right to wholesome food, the right to merciful upbringing — these we may hold to be equal among all children born in our free country. It is to insure these rights that the present-day movement for maternal and infant care is dedicated.

To make effective these progressive and sane ideas — which are not so much new, as an effort to revert under modern complexities of civilization to normal conditions of human life, many avenues of success are open. Wise and cautious legislation is needed — laws to obstruct harm and laws to encourage progress; and laws to provide means.

Back of all these efforts, the pressure of understanding public opinion is the force which must operate. To obtain effective publicity for such work is not easy. The word "propaganda" stirs resentment, for the public has been surfeited with special pleas. Yet here we have a cause whose nobility none can challenge. It appeals to a sentiment that none disrespect. It awakens emotions common to all men and women. Once let the public realize the need for more effective care for the babies of the mothers of America; once let the public recognize the possibilities for the public good in a surer guaranty of a fair chance for every person born under our flag; once let the public stir to the fact that the voice calling for help is the voice of a mother in pain, or the cry of a child in suffering — then there will come such an answer as will wipe from the records of the land the stain of neglect for infants and their mothers, and will write in its place across the pages of our records the new guaranty of equality, under which there shall be no American child without a fair chance for life, liberty and the pursuit of happiness.

The rights of American citizenship begin with the unborn child. When we have made good our guaranty to him, we have strengthened beyond the possibility of future collapse the foundations of the American republic.

THE VALUE OF PRENATAL CARE AND THE RESULTS THAT FOLLOW THE LACK OF IT.

By Robert L. DeNormandie, M.D., Instructor in Obstetrics, Harvard Medical School, Boston.

DURING recent years all the medical journals devoted to obstetrics or to child welfare have contained many articles on the value and necessity of prenatal care of the pregnant woman. From reading many of these articles it would appear that the need of this supervision was appreciated but that many women failed to receive it. If the need is appreciated, why then does not every woman who is pregnant receive it?

The answer is that relatively few of the women of the country at large do appreciate this need, and relatively few receive it. The majority of pregnant women go through their pregnancies some way or other, and only a few in any given community meet disaster. Yet the total of disasters that are counted each year in the State is much too great. It has incontrovertibly been shown that a large percentage of these disasters, both to the mothers of the State and to the oncoming generation, is preventable, and it clearly is the duty of the State to do all it can to rectify this condition.

Prenatal care will reduce materially these preventable disasters. It will not, as some enthusiasts would have us believe, stop them all or prevent miscarriages, stillbirths, malformed and degenerate children. Let us be honest and not claim that prenatal care is the panacea for all the poor results in obstetrics.

What is Complete Prenatal Care.

Complete prenatal care, and by that we mean good medical supervision from early in pregnancy and access to a well-equipped obstetrical hospital for complicated cases, is an ideal which we are far from having attained, even in Massachusetts. Until this standard is obtained we will have wretched obstetric disasters.

In analyzing the answers to a questionnaire recently sent out by the Massachusetts Medical Society in relation to its study on maternal deaths, it was found that many physicians answered that prenatal care had been given the case in question, yet it appeared only one or two visits had been made on the case. All thinking physicians know that one or two visits to a pregnant patient does not constitute complete prenatal care — it is better than nothing, but it is far from what is right or due the pregnant woman. For this condition of affairs the patient is as much to blame as is the physician, for she will not go to her physician as early as she should. The physician is not wholly free from blame, however. On his part the importance of constant oversight of the patient is not stressed, and when the patient does not appear at his office, he places the responsibility on her and fails in most cases to follow her up as he knows should be done. If the patient fails to report as requested, does he write to her and say he will not take care of her any longer? That practically is unheard of; and yet the majority of our obstetric disasters arise because the individual patient has not had medical supervision throughout her pregnancy.

Disasters from Lack of Prenatal Care.

It is obvious that in a few paragraphs one cannot go over all the bad results that follow the lack of prenatal care, so I shall make two groups of cases which show the results that may come from the lack of efficient prenatal care. Let us take first the beginning of pregnancy and then the end of pregnancy.

The early miscarriages due to ill-advised exercise either for pleasure or because of work can readily be reduced in numbers by an intelligent laying out of the exercise to be done. The miscarriages due to coitus, especially at what would be a menstrual period were the patient not pregnant, can be made fewer.

Another cause for miscarriage, the retrodisplaced uterus, is in many cases removed if an early vaginal examination is made and proper treatment instituted. But it is the exception rather than the rule that vaginal examinations and complete physical examinations are made. If such examinations were made, would not early extrauterine pregnancies be discovered, pelvic tumors found and damaged hearts and kidneys revealed? Oftentimes, if proper medical and surgical treatment were instituted at once, lives would be saved.

All through pregnancy the possibility of a toxemia developing is possible, but in the last three months a troublesome toxemia is more likely to develop. Unless the patient is watched carefully, the possibility of this toxemia going on to a severe eclampsia is more than probable. Our treatment of eclampsia is far from satisfactory, but in the large clinics where efficient prenatal work is carried on, combined with a careful follow-up system, it has practically been wiped away. Thus it is conclusively shown that if every pregnant woman had complete prenatal care, the disasters from eclampsia would be very few.

The majority of severe bleeding cases also appear in the last three months, and many could be effectively safeguarded were they at once regarded as potential disasters the moment the first bleeding appeared. Not infrequently the first bleeding jeopardizes life, but more commonly the bleeding occurs over a period of days, and yet no adequate treatment is accorded the patient. Here again, prenatal care will help to lower the mortality and morbidity from these troublesome and dangerous cases.

The last group which comes at the end of pregnancy are the cases of disproportion, and it is in these cases that have no prenatal care where such dire results follow. No pregnant woman should come to her labor without the physician in charge knowing accurately whether any disproportion between the pelvis and the baby is present. How far we fall short of this ideal! How many women face labor without any adequate investigation of the relation of the baby to the pelvis! The results that follow are all too well known — the stillbirths, the damaged children, the maternal deaths and the maternal morbidity are all so common that laity and profession alike regard them as all in the day's work, and do nothing or next to nothing about them.

Careful, complete prenatal work by well-trained physicians will minimize the obstetric disasters that are now everywhere throughout the country. It cannot stop the accidents that all physicians, good and bad, meet in obstetrical work. It is only by intensive education of the laity, and by improving obstetrical teaching that we can hope to prove to every pregnant woman that prenatal care has a value and without it dire results may follow.

DIET FOR NORMAL PREGNANCY.

By Lou Lombard, B.S., Health Instructor in Nutrition, Massachusetts Department of Public Health.

THE question of diet during the period of pregnancy is one of great importance because the fœtus is entirely dependent upon the mother's body for its sustenance, and provision of proper nourishment for its development is one of the best means of assuring physical health in later years.

General Diet.

The diet for this period, contrary to the general belief, differs in no marked degree from the usual optimal diet for health. Such a diet includes milk, coarse cooked cereals, coarse dark breads, fresh fruits and vegetables, especially the green, leafy ones, and plenty of water. This type of diet tends to prevent constipation which it is necessary to avoid.

Food Requirement.

Popular opinion holds that the prospective mother should eat "for two." This is very untrue and unwise as overeating at this time is more likely to produce discomfort than undereating. During the first few months of pregnancy the gain in weight of the fœtus is very slight, thus not necessitating additional food, and it is only after the fifth month that the rapid growth occurs. In fact, 90 per cent of the growth in weight is attained during this time. The energy requirement after the fifth month is greater by 20 to 40 per cent, owing to changes in certain body activities, such as pulse rate, which is accelerated and respiration, which is more rapid. This additional energy must be supplied by food, although sometimes it is offset by a decreased tendency to exert oneself physically. Milk is perhaps the best food with which to meet this added requirement. A quart of it yields about 640 Calories which would give a little over a 20 per cent increase for a woman requiring 3,000 Calories daily. Sufficient food should be taken, however, to meet the requirements of the mother's body and furnish material for the fœtus.

Monthly Weighings.

Some physicians advocate monthly weighings of the patient. The average loss of weight during delivery is between 15 to 20 pounds. If a woman has normal weight before pregnancy the total gain during this period should not exceed 20 pounds, and most doctors prefer to keep it at 15 pounds. If the patient was previously somewhat underweight greater gain may be allowed. A woman who is fat should be kept on a carefully limited diet and she may actually reduce to the benefit of herself and fœtus. During the last few months of pregnancy obesity should be avoided. Increasing weight of the mother unduly may mean a more difficult labor.

Needs of Fœtus.

The special needs of the fœtus are adequate material for growth; that is, protein, minerals and vitamines. The best type of protein for growth is furnished by milk, and for this reason it should be one of the chief articles of the pregnant woman's diet.

Minerals.

The essential minerals for proper development of the fœtus are calcium, phosphorus, and iron. Calcium is indispensable for the construction of a normal skeleton, and the teeth are composed largely of it. In fact, 96.41 per cent of the enamel is calcium salts. If this is not furnished in adequate amount for the development of the fœtus, calcium is withdrawn from the maternal source and the mother's system pays the toll, the teeth included. All the teeth a child ever possesses are under construction long before he is born, and the enamel of the first teeth is largely dependent upon the material he receives before birth. A normal adult requires about .67 grams of calcium per day, and "Givens and Macy" found in their research that a fœtus required .07 grams per day making a total of .74 grams for both. A pint and a half of milk furnishes this amount and if this is included in the diet will adequately meet the requirements for calcium. Green vegetables, fruits, and coarse cereals are good sources of calcium but milk is the most efficient one. Phosphorus is necessary along with calcium for proper bone development but if the foods providing the necessary calcium are given, adequate phosphorus will be obtained. Iron is found in the liver at the time of birth in a higher per cent than at any subsequent time, and there is great need for the prospective mother's diet to include this. Breads made from coarse dark flours and molasses, such as rye, graham, and whole wheat bread, dried fruits such as prunes and raisins, provide iron in generous amounts, but one of the best sources are green vegetables, and these, therefore, constitute an important requirement of the pregnant woman's dietary.

Vitamines.

The vitamine-containing foods should be provided in the diet during pregnancy as a deficiency of these may prevent the development of a normal, healthy child. Vitamines A and C are especially necessary for strong bones and healthy tissues. The tendency to scurvy in a young infant can be reduced considerably during the prenatal period, if the mother has had plenty of food containing Vitamine C., such as raw fruits and vegetables. A diet providing milk, butter, raw fruits and vegetables, will give adequate vitamine.

Precaution.

During the period of pregnancy extra work is thrown on the excretory organs, especially the kidneys, and since they are the ones which take care of the waste from protein foods, these have to be used sparingly. Especially is this true of meat and eggs. The routine analysis of the urine for the presence of albumin will determine to what degree this precaution need be observed. In general, however, it is safe to say that a wise practice is to eat sparingly of protein, especially meat and eggs, and during the last few months of pregnancy use no protein except milk, combined with a liberal amount of fruits and vegetables. Frequently, 5 or 6 small meals daily instead of 3 full meals agree better with the pregnant woman.

Selection of Diet.

To sum up the diet of a normal pregnancy it is safe to say that the pregnant woman should eat moderately of simple, well-cooked, easily-digested food, always avoiding any foods which are known to disagree. Her diet should include every day milk, at least one quart; a serving of coarse, cooked cereal such as cracked wheat or coarse oatmeal; the coarse dark breads such as rye, bran, whole wheat or graham; fruits and vegetables, especially the green, leafy vegetables and some raw fruit; and plenty of water, at least 8 glasses.

Suggestive Menus for the Period of Pregnancy.

Breakfast.	Lunch.	Dinner.
Stewed prunes. Rolled Oats and milk. Graham toast, butter. Glass of milk.	Cream of potato soup. Crackers. Lettuce. Graham bread, butter. Fruit sauce. Ginger bread.	Pot roast of beef. Baked potato. Spinach. Graham bread, butter. Tapioca custard.
Baked apple. Cracked wheat and milk. Graham muffins, butter. Cocoa.	Creamed macaroni and cheese. Rye bread, butter. Celery. Glass of milk.	Baked fish. Mashed potato. Stewed tomatoes. Graham bread, butter. Apple and bread pudding. Lemon sauce.
Stewed apricots. Cornmeal mush and milk. Graham toast, butter. Glass of milk.	Split pea soup. Graham bread, butter. Apple and celery salad.	Mutton stew with vegetables (carrots, celery). Boiled potatoes. Graham bread, butter. Baked Indian pudding with top milk.
Rice with raisins and milk. Bran muffins, butter. Glass of milk.	Cream toast. Apple sauce. Rolled Oat cookies. Glass of milk.	Poached egg. Bacon. Spinach. Baked potato. Graham bread, butter. Junket.
Orange. Rolled Oats and milk. Graham toast. Cocoa.	Omelet. Bran muffins, butter. Stewed prunes and dates. Ginger cookies. Glass of milk.	Fish chowder. Graham bread, butter. Lettuce with dressing. Rice pudding.
Banana. Cream of Wheat with bran and milk. Whole wheat muffins and butter. Glass of milk.	Vegetable chowder. Corn bread, butter. Baked custard. Molasses cookies.	Baked beans. Brown bread. Cabbage salad. Fruit sauce. Glass of milk.
Rolled Oats and milk. Toasted bran bread and butter. Bacon. Glass of milk.	Scrambled eggs. Toast and butter. Pear sauce. Plain cake. Glass of milk.	Meat loaf. Baked potato. Creamed cabbage. Graham bread, butter. Chocolate cornstarch pudding with top milk.

SIMPLE PRINCIPLES IN BREAST FEEDING.

By Richard M. Smith, M.D., Boston, Mass., Assistant Professor of Child Hygiene, Harvard School of Public Health.

NATURE intended that every infant should be fed on human milk. The offspring of every species is best nourished by the milk produced by the same species. There is no perfect substitute for Maternal nursing. It behooves us, therefore, to make every effort to secure this best food for every infant. If this food is to be made available, it is necessary for us to be familiar with the care of the mother and the infant which is most likely to produce the desired result. There are certain simple principles which, if they are carried out, will produce success in most instances. Except in a very few circumstances there is no condition of the mother which will contra-indicate putting the baby to the breast within twenty-four hours after the baby is born. Maternal nursing should not be undertaken if the mother has a serious chronic disease or an acute disease so severe as to jeopardize her life. There are only two conditions in the baby which contra-indicate nursing — one, some congenital defect of the mouth, such as hare-lip or cleft palate which mechanically makes nursing impossible, and the other a premature or feeble baby who should be spared the effort of sucking. Neither of these conditions need deprive the baby of breast milk, for the mother's milk can be pumped from the breast and fed to the baby from a medicine dropper, a Breck feeder, or a bottle.

Health Habits of the Mother.

It is extremely important in the management of the mother and infant during the nursing period to establish as quickly as possible a routine which will prevent the continuation of nursing becoming a burden. As rapidly as the mother is able she should take a full adult diet without restrictions except of such articles as disagree with her or prove on more than one occasion to disagree with the baby. In addition to her usual diet she should take at least two quarts of liquid in the twenty-four hours, one quart of which should have a definite food value, i.e. milk, milk soups, cocoa, etc. The other quart may be water. The nursing mother should have an adequate amount of rest and sleep. Fatigue induced by lack of sleep interferes greatly with successful nursing. The mother should have as much outdoor exercise as she is able to take considering her recent confinement. She should have enough recreation so that she will not be unhappy, for unhappiness establishes a frame of mind which is sure to result in early weaning. So far as possible, she should cultivate a calm outlook upon life and not worry about her own condition, her baby or domestic affairs.

Regularity in Nursing; Emptying the Breasts.

Regularity is essential for successful nursing. The baby should be put to the breast by the clock and awakened for feeding, if necessary, and should not be fed between meals even if he cries. If he cries between meals, it means that he is either overfed, underfed, has indigestion, or is spoiled. Feeding at irregular intervals will correct none of these causes and will probably increase his crying and make a proper regulation of his feeding more difficult. As a rule the baby should be nursed on only one breast at any nursing. It is important that he empty the breast at each feeding, because if the breast is not emptied the milk will almost surely decrease. It is sometimes necessary to empty the breast with a pump or by manual expression after the baby finishes. As a rule this procedure is unnecessary. If the baby does not receive enough food from one breast, he should be given enough from the other side or food from a bottle to furnish the necessary amount. If the additional food comes from the other breast, that breast should be used first at the next feeding in order that it may be emptied and a decrease in the milk supply prevented. The use of the second breast should never be used for complemental feeding if the baby is fed more frequently than every four hours.

Time of Nursing.

In most instances the nursing is better conducted with the mother sitting up and the baby held in a semi-upright position. This allows gas to escape from the baby's stomach during the nursing. The nursing should not be continued for more than fifteen or twenty minutes. About sixty per cent of the milk is obtained in the first two minutes and eighty-five per cent in the first four minutes. The continued sucking of an infant at the nipple after the breast is emptied does not give the baby any food, and sometimes results in sore nipples and often establishes a bad sucking habit.

THE INTERVAL.

The interval at which nursing is given, whether every three hours or every four hours, depends upon the amount of food that a baby can take at each feeding. The infant must receive an adequate amount of food in each twenty-four hours in order to grow. If this amount can be taken in four or five feedings at four hour intervals, it is of distinct advantage. It will be much easier for the mother when the nursing intervals are less frequent and it requires very much less handling of the baby. If, however, the baby is unable to get the required amount of food in less than six or seven feedings, it will be necessary to feed the baby every three hours.

AMOUNT OF MILK.

Most breast fed infants will require from two and one-half to two ounces of breast milk per pound for each twenty-four hours. Sometimes a baby will gain on less this amount and often he takes more. If a baby is in good condition and is gaining from five to seven ounces a week, he is getting enough food. If he is gaining less than five ounces a week, he probably is getting too little food and he must be given a complemental feeding. In order to determine the amount of breast milk a baby receives in the twenty-four hours, he should be weighed before and after each nursing. This should be done for all the feedings of the day because there is usually a considerable variation in the amount of milk at the different feedings. If the twenty-four hour amount of milk is only a little below the requirement, complemental feeding after each nursing is usually the most satisfactory way of supplying the additional food. This complemental feeding may be a cow's milk mixture. Sometimes it is wiser to give one entire bottle feeding a day and have the baby nurse both breasts at one or two of the other feedings. No arbitrary rule in this matter can be laid down, for the individual baby must be considered and the choice made according to the circumstances.

It is important to preserve a small amount of breast milk even though a considerable proportion of the twenty-four hour food is furnished by complemental cow's milk feeding. Breast milk is especially desirable during the first six weeks. If half of the food for the twenty-four hours is breast milk, there ought to be no question of weaning. Complemental feedings may be continued satisfactorily for many months.

Not every breast fed baby will be free from indigestion and not every breast fed infant will have smooth, golden yellow stools; but every breast fed baby is receiving the best food for infants. If we study the questions which any individual baby may present, we can as a rule correct the difficulties, if any exist, and continue Maternal nursing. A baby should not be weaned for reasons which in a bottle fed baby would indicate only further study of his condition. We must consider both mother and infant, but especially the mother, in all instances of difficult breast milk feeding. Remembering that there is no perfect substitute for Maternal nursing, we should make every effort to give every infant the benefit of breast milk.

INFANT FEEDING.[1]

BY ELI CHARLES ROMBERG, M.D., CONFERENCE PHYSICIAN, COMMUNITY HEALTH ASSOCIATION, BOSTON.

IT is obviously impossible to cover, in the short time that has been allotted to me, such a large problem as Infant Feeding; but I shall only hit the high spots in order to give you a connected story, and shall cover in greater detail those phases which I think you, as nurses, will find important in your work.

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[1] Talk given during a conference conducted by the Massachusetts Department of Public Health for Maternal and Infant Hygiene Nurses.

I am going to take this opportunity to emphasize the importance of breast feeding, because I feel that the frequent departure from this method to that of artificial feeding is greatly due to the neglect of the doctors and nurses in not insisting upon such a procedure. You probably have heard before all that I shall tell you, but I am sure it will bear repetition.

Advantages of Breast-Feeding.

One of the most important facts in the study of infant feeding and the prevention of gastro-intestinal diseases in infancy, is that mother's milk is the only proper food for the baby. Whatever science has accomplished in the past, in its attempt to create a substitute, the result has been an inferior one. Disturbances of digestion occur more frequently in infants who are artificially fed than in those who are breast-fed. No matter how carefully we prepare cow's milk, in our attempt to make it resemble that of woman's, no matter how we regulate the infant's feeding and fulfill other necessary requirements, there are always more intestinal disturbances than when the child is fed on breast milk. Cow's milk is an unnatural food for the child. Sometimes it is the character of the combined mixture that is a troublesome factor, or more frequently the foreign albumins of the cow's milk irritate the membranes of the child's intestines. It would be unfair to say that cow's milk itself is the most frequent cause of death in infancy, though it doubtlessly is a great contributing factor to the high mortality seen in the child's first years. If the mother, the nurse, and the doctor appreciate for all time that breast milk is the only food for the baby, and will do their best to advance this phase of infant feeding, much will be accomplished in the prophylaxis of the diseases of infancy.

Prenatal Influence.

This work of course begins at the prenatal stage. The mother must be taught to appreciate the requirements of impending motherhood when plenty of healthful exercises, proper nutrition, and suitable clothing are essential. She must appreciate that pressure on the breasts may interfere with the proper functioning of the mammary glands. Foresight, particularly in the later months of pregnancy, may result in the proper development of the breasts and richer milk supply. The mother must also appreciate that it is her duty to nurse the child; and all those who are interested in this problem should do everything possible to create this state of mind.

Insistence on Breast Feeding.

Unfortunately, many women have felt that modern science has succeeded in developing a food just as good as breast milk, and with natural inclinations the mother has attempted to shirk her duty, particularly if the physician easily falls in line with her point of view. Other women are too busy with social activities to be desirous of making the necessary sacrifices that go with breast feeding. There are many mothers who must earn their living and who have to depend on the nurseries for the feeding of the child. With the more intricate development of our social and economic life, there have necessarily arisen many reasons why women have resorted to artificial feeding.

The insistence upon breast feeding has been the most important means in reducing infant mortality. Undoubtedly, however, the education of the public in the methods of artificial feeding and our own increasing scientific knowledge in the nutritional problems of infancy have been vital contributing factors. Our past experiences under difficult circumstances such as milk and other food shortages, and the resulting campaigns of physicians and infant welfare stations, have shown us that breast feeding is possible in the majority of women in spite of the adverse environment in which some people are compelled to live. In our overcrowded and unsanitary districts infant mortality has been lowered by the practice of breast feeding. In our obstetrical hospitals, obstetricians meet the woman who refuses to nurse her infant because her mother and grandmother could not breast feed their children. With this prejudiced point of view no attempt is made by her to nurse her infant and it is only the insistence and stubbornness of the physician that succeed in proving to her that she is capable of nursing her child, thus bringing health to the infant and satisfaction to one who is glad to be shown that her prejudices have no basis.

I shall not go into statistical detail, but records show that the mortality for the artificially fed is about five times as great as the breast-fed. However, infant mortality is not the only problem. In later life the bad effects of artificial feeding are manifested: the various intestinal disorders and the disorders of nutrition which do not kill the child, but which may make him more susceptible to acute infections, or may hamper him by an imperfect or a deformed physical development. After the first four months or so, when the child has been given a good start and is making rapid strides in the development of a vigorous body, it is proper to give the mother a little leisure by introducing a formula for the afternoon's feeding. This will give the mother a period of rest for six hours when she may do her shopping or go to a matinee.

Diet of the Mother.

Some mothers who are anxious to feed their babies feel that they have not enough milk. These women should be encouraged to live a natural life, full of normal, healthful activities, free from undue worries, and to maintain the same full varied life and diet that they enjoyed before their pregnancy. The best galactalogue is the infant himself. More vigorous stimulation by him results in the greater activity of the mammary glands. The next best galactalogue is water, then milk and those proprietary malt foods. Many women are encouraged to drink large quantities of cocoa, but because of the feeling by many pediatricians that eczemas of infancy may be caused by some child's idiosyncrasy to such foods, these should not be encouraged, particularly when there are so many other means of obtaining a rich flow of milk. Many children may be too feeble to stimulate the breast properly and unfortunately during this period the milk supply is allowed to run dry. By proper manipulation the breast milk can be withdrawn and fed to the infant until he has succeeded in developing sufficient vigor for his feeding. The milk supply may be deficient through the fault of the woman herself because of inadequate nutrition, of inactivity, overeating particularly of the rich foods. She may be overworked and underfed, or she may be the type of highly overstrung, neurotic woman found in our large busy communities. There are obvious cures for such conditions, — sufficient rest, good hygiene, nutritious diet, and freedom from worry.

Difficulties in Breast-Feeding.

Even when breast feeding is attempted difficulties may arise. The mother appreciating the value of breast feeding may look upon the task as an evil and be anxious to get through with it as quickly as possible. She nurses the baby hurriedly, she herself is restless and active during the feeding, the child is held uncomfortably, the environment is noisy and there are many things which distract the mother and unnerve the child. These must be corrected. The nipples may be depressed, so that the child, if he is not vigorous, will make no attempt to withdraw them, or if he faithfully attempts to feed will get no encouraging results. Depressed nipples can be withdrawn by the persistent effort of the child, the manipulation of the breasts by the mother, and by the use of breast pumps. Though it is very primitive and barbaric, the method employed in some European countries of allowing young puppies to nurse at women's breasts that have depressed nipples has proven very successful. Cracks or fissures in the nipples frequently occur. This may result in the infection of the breast because of this portal of entry, or may end in a depleted supply of milk because of the protected mechanism of the mother who withdraws her breasts because of the pain during suckling. Proper care of the breasts during pregnancy and during nursing will eliminate such conditions. Washing the nipples with boric acid before and after feeding, the use of tincture of benzoin compound, castor oil and zinc ointment, and a nipple shield can relieve such conditions. Of course you have been told in detail of the care of the breasts, which I have only outlined here, because of the direct bearing on successful nursing.

Now the breast milk may not be abundant through the child's own fault. He may be too weak and premature to possess sufficient strength for forceful suckling. There may be physical abnormalities in the child such as adenoids, harelip, cleft palate. He may be too frequently fed, so that his appetite is impaired and as a result takes little milk and never completely empties the breasts. Frequent distractions, of which I have already spoken, tend to make a child irritable, particularly in the nervous type of infant. This type of child, being distracted, stops feeding before the meal is finished and the breasts sufficiently emptied, and cries persistently immediately after a feeding and before the next feeding is due. Many children who are anxious to feed cannot do so because the mother has never been taught to hold the baby comfortably during nursing. Some children have difficulty in breathing because of large spongy adenoid tissue, so that when the child's nose is thrust into the mother's breast he is unable to breathe during his feeding and improper weak suckling attempts occur. Sometimes the child is held so uncomfortably that feeding is an effort for him rather than a pleasure. Therefore the mother must be taught to support the substantial parts, — head, shoulders, and buttocks. She may lie down during feeding or be seated. She will learn by experience what method is the more comfortable for her and the child.

The Premature Infant.

I shall not discuss the feeding of premature children, because that has been taken up for you in a special lecture. I shall only repeat that the important considerations in their care are: proper maintenance of temperature, the careful consideration of feeding requirements, the methods of introducing milk into the child, and finally the care and prevention of infection.

Analysis of Breast Milk.

Many women will be anxious to stop feeding, or even never begin, because of the character of their milk. They complain that it is watery and blue, and does not seem to have any food quality to it at all. Many encourage the doctor to analyze their breast milk. Breast milk analysis is rarely practiced now, because of the variation of the quality of milk at different feedings and at different times during the day. The analysis is not at all significant unless samples are taken at the beginning, at the middle, and at the end of the feeding, and finally samples taken at various times during the day. Because of such entailed labor, and because of the little value that can come from such inconvenience and expense, this method is not practiced much now.

Summary.

Summarizing the breast feeding, I might say that breast-fed babies are more likely to live than those artificially fed, and are more healthy, more vigorous, and more resistant to disease. During the year of 1904, in Berlin, only nine per cent of the infant deaths were of breast-fed babies. The Board of Health in New York states that eighty-five per cent of all infant deaths occur in artificially fed children. Women are unwilling or unable to nurse their babies. Women do not nurse their babies because they do not appreciate its importance. The nurses and doctors are more to blame because they do not impress upon them this fact. Many women are unwilling to sacrifice their pleasures and conveniences and are willing to depend upon the improved artificial feedings and the proprietary foods which are extensively advertised.

Contra-Indications to Breast Feeding.

I have spent a great deal of time in encouraging breast feeding. However, there are women who must not breast feed their children. I cite the following conditions where breast feeding is contra-indicated:

1. Women with active pulmonary tuberculosis, — because of the great danger of direct infection of the baby, and rarely through the milk supply. Even in healed tuberculosis, nursing should not be encouraged, because of the danger of starting up or increasing the activity of the pathological process.
2. Insanity.
3. Epilepsy, because of the danger of an attack during breast feeding.
4. Delicate and feeble women, and those who are suffering from debilitating chronic diseases, because the strain of nursing will further their debility, and because the milk supply from such sources is obviously poor.
5. Those who have severe nephritis and who have had severe hemorrhages in delivery.
6. Women having puerperal eclampsia should not nurse their children, because of the possibility of some anaphylactic reaction.
7. Women who are pregnant, because of the unusual drain in feeding three.

Syphilis is not a contra-indication to breast feeding. If the mother has active syphilis, the baby has been infected before birth, and if the baby has syphilis the mother has it.

Procedures in Breast Feeding.

I have already described to you the method of making the baby comfortable during feeding. During the first few days of life the baby may not get much satisfaction from the breasts. Ordinarily the baby is put to the breast from six to eight hours after birth depending upon the vigor of the child and the condition of the mother. The object of putting the baby there is to stimulate secretion during the first few days. Nothing but colostrum appears, first in small amounts and gradually increasing until the appearance of the milk during the fourth or fifth day. Because of the small amount of nutrition during this period, the baby frequently loses weight during the first week. This first loss can be avoided to a great extent by giving the baby large amounts of water which serves to flush out the kidneys and make up for lost fluids, and by frequent small amounts of sweetened water. At first the baby may require feedings every two to two and one-half hours, but as soon as possible a three-hour schedule should be maintained with one night feeding. Even the latter should be eliminated after the child is two or three months old and is apparently fairly vigorous.

One of the most important factors in maintaining a healthy, active life is the formation of habit. There is no better time to begin than in infancy. Many of the difficulties that the high-strung, restless, irritable child encounters are due to the careless, irregular schedules that were arranged for him in infancy. Much of the sleeplessness, restlessness, fretfulness, vomiting, diarrhœas, and general bodily malnutrition can be ascribed to the irregularities of feeding. In a breast-fed child, other factors being considered, I believe this to be one of the most important considerations.

Length of Feeding.

It is frequently asked how long shall a baby be kept at the breast? How is one to know when the baby has had enough? It is not true that a baby will stop when it has had sufficient, for most children are gluttons and will take in much more than their gastric capacities. One must not wait until the child vomits to prove that he has had enough. Recent investigations have shown that a vigorous child, if kept busily engaged, with no distractions, will get about eighty-five per cent of the milk supply in five minutes and that ten to twelve minutes will give him nearly all of value that he can obtain. With this schedule in mind, think of the frequent unnecessary vomitings that one can eliminate, and consider the saving of time and strength which a mother can devote to other tasks.

Babies should be awakened for their feedings. This matter has been lengthily discussed. In addition to the other obvious reasons for regularity of feeding, such a procedure merely adds to the importance of habit formation. Let the body accustom itself to routine, regular visits of food which it has learned to accept and utilize at accustomed intervals. Some babies will take the breast so vigorously that they get their supply too quickly. Much air is sucked in in this process. This not only gives them distress but may cause frequent vomiting. If such a condition exists, the child should not be permitted to eat too fast, but the breasts should be withdrawn and the child given a moment's rest.

Supplementary Feeding.

Sometimes it will be necessary to give the baby a supplementary feeding. Again the amount needed will be a question. This is more difficult to ascertain, and one must be guided by the behavior of the child. Of course one could weigh the baby before and after a breast feeding at different periods to find the general average of food so taken, and then give the additional feeding equal to the gastric capacity of the child. A rough, useful rule to determine the stomach contents of the child is frequently used. A child can hold one ounce to an ounce and one-half plus its age for a feeding. This rule is useful up to six or seven months of age. For instance, a child of four months can stand from five to five and one-half ounces to a feeding. It is always important, when supplementary feedings are used, to begin with the breast feeding no matter how little milk is available. This assures one that the child is going to get some of the more useful milk first. Should his appetite be impaired, one will be comforted by the fact that the infant has received the best part of his meal. Between feedings the child can be given small amounts of boiled water. Many children will refuse boiled water, but will take orange juice or slightly sweetened liquids. To be assured of sufficient liquid intake, one can dilute the orange juice to maintain the necessary amount. Ordinarily sweetened foods should not be encouraged, and yet water is a greatly desired factor, and as a last resort a little sugar can be added. Many mothers will ask for a supplementary feeding, saying that they do not think the baby is getting enough milk. Usually there is no danger in submitting to her request, particularly if the child has had a good start in breast feeding. But the mother may be wrong in her surmise. Should the baby be given a formula he may find it more pleasant than the mother's milk and refuse to take the latter. I feel that one should first find out whether the mother's health is good, whether the baby is fulfilling all the rules for proper breast feeding, and whether the mother is living up to all one's recommendations. If the baby fails to gain in two weeks with these considerations eliminated, then one is justified in giving a supplementary formula. We must not be too eager to write formulas.

Normal Gain in Weight.

Normally a breast-fed baby, after the first several weeks, gains from four to six ounces a week. Some children will do even better and average over an ounce a day. Towards the latter part of the first year the gain is a little less per week. Some children will make abnormal strides, in one week gaining as much as a pound and the next week will remain at a standstill because of the unusual strides of the previous week. Personally, I do not think that one should be worried by these temporary lapses as long as the gain of weight over a period has been progressive. Of course it is a better picture to observe a child who has made a progressive, constant gain than one whose gain has been frequently interrupted.

Ordinarily a normal baby is not distressed, has no vomiting or diarrhœa, and has several small soft, yellow, non-foul stools a day. Others will have a very small stool following each feeding apparently due to the excited intestinal movements during the stress of breast feeding. This again is normal. Some breast-fed babies may be constipated or their stools may be too frequent and show other abnormal characteristics. This may be due to the mother's constipation, some irregularity in her life, some improper intake of food, some infection, or menstruation. In order to eliminate this, the mother has to be treated.

CONSTIPATION.

Many mothers take constipation too seriously. Personally, I would encourage patience and an attempted correction of diet rather than to give frequent laxatives early in life. It is just another habit formation from which one will find it difficult to break. First, in this attempted correction I encourage the mother to live a normal life, to have sufficient abdominal support for the weakened muscles, to do all those exercises that tend to bring the abdominal muscles to their previous state, to eat a bulky diet, to force fluids, and finally, and most important, to make a persistent attempt to form a time habit for bowel movements. Many infants will be benefited by these corrections. One should attempt to make a child's bowels move at a regular time. We can always depend upon sufficient fluid intake. A little later in infancy, we have the fruit juices to help us. Many of the infants are constipated because of weak, flabby abdominal musculature and the concomitant flabbiness of the intestinal tract. Abdominal exercises cannot be started too early. After the early morning meal, by pressing down deeply into the left lower quadrant; then stimulating the abdominal musculature contraction to incite bowel movement by grasping the child's trunk with one hand and pressing the thighs deeply into the abdomen. The infant frequently learns what it's all about when he receives the occasional added irritation of a glycerine suppository. It is much better to do this and to give occasionally a mild laxative, enema, or suppository than to be compelled to depend upon one routine means of establishing bowel movements. I believe that much of our constipation in infancy and in later life can be corrected by the persistent, patient co-operation of the mother in establishing the habit formation which I have outlined.

If the mother has an acute infection, it will not be necessary to wean the child. Some infants undoubtedly will be uncomfortable, if the mother is menstruating. A little more fluid to make up the loss of body fluids or an occasional supplementary feeding, will cover whatever loss the baby may have.

CHARACTER OF THE STOOLS.

Since many of the gastrointestinal difficulties are due to an unusual intake of some food, and since the stools are frequently our only method of determining this difficulty, it might be important for you, as nurses, to recognize what normal stools look like, so that you may know when your alarm is justified.

A starvation stool is composed of bile, bacteria, and the various intestinal secretions. It is very scanty, brownish green in color, and looks like meconium. The odor is sometimes like vinegar and occasionally like that of starch or paste.

In fat indigestion the stools are soft, greasy, gray-white, and contain small, easily broken white curds which float in water. Such stools if rubbed between paper leave the oily spot commonly associated with grease stains. If the stools are soapy they are usually gray colored, dry, and crumbly. The odor is rancid.

Carbohydrate indigestion you probably will more frequently find when there has been an extensive intake of starch or sugar. The stools are brown to yellow, fairly large, salve-like, and the odor is acid when the starches are taken in abundance. When the sugar is abundant and in bacterial fermentation, the stools are loose, green, and frothy, and the odor acid. It is this type of stool that often causes excoriation of the buttocks and genitalia. At this point it might be well to consider the care of excoriated buttocks and genitalia. Insistence upon cleanliness is the first requisite. Castor oil and zinc ointment applications are soothing, but one of the most beneficial and clean methods of treating the irritation caused by highly ammoniacal urines is the use of the boric acid diaper which acts as a neutralizer. The mother simply rinses the washed diaper in boric acid, drying the diaper with this solution present.

In protein indigestion, we have large, whitish, tough curds which resist breaking and which sink in water. The stools are large, brown, and are rather foul in odor. Frequently, with the use of some proprietary dried milk preparation, we may get such stools.

There are other things that one frequently finds in the stools — mucus, which is a sign of either mechanical or bacterial irritation of the intestinal tract; pus, which means prolonged irritation of the gastrointestinal tract, either mechanical or bacterial, with resulting infection and probably destruction of the mucous membrane; blood, if noted in small amounts and bright in color and on the outside of the stool, is indicative of an anal fissure; if mixed with the stool, slightly darker in color, indicates a lesion higher up. Membranes indicate some sort of severe irritation of the intestinal tract. We frequently used to see such lesions in the severe infectious diarrhœas. There may be in some stools undigested particles of foodstuffs, cellulose material of various sorts, and foreign bodies.

Vomiting.

In order to give you some understanding of the vomiting which you so frequently see in breast-fed and artificially-fed children, and that you may appreciate the significance of vomiting, I shall briefly consider some of the most important causes. We may have a congenital obstruction in the form of a partial or complete atresia, a pyloric tumor, a volvulus or fecal obstruction. The failure to accept any food at all with no stools, persistent loss of weight will make you think of an atresia. Persistent projectile vomiting beginning very early in infancy with a constant loss in weight, scanty stools, and marked visible peristalsis will make you consider a pyloric tumor. A sudden attack of abdominal pain with persistent vomiting, first of food material and then of blood-streaked thin vomitus with no stools, and with possible abdominal tumor palpable will indicate a volvulus. A history of constipation with palpable fecal masses will make you think of fecal obstruction. There are several other obscure causes of obstruction which I shall not mention here.

In a young infant, accustomed only to the simple, well-prepared food elements of his milk, the introduction of some heavy food, or something entirely new to him may result in vomiting. This may be either too heavy a protein or too heavy a fat.

I have already spoken of the irregularities of feeding and the resulting overloading with vomiting as an expression of this situation; and I have already considered the high-strung mother with the nervous, restless youngster who will vomit at the slightest distraction or irritation. One of the earliest evidences of an approaching acute infection in a child is vomiting. This may persist during the entire illness, but is more likely to occur only during the first day of the disease. Though appendicitis is rare in infancy, it must be considered as a likely cause for this condition.

The Preparation of Formulæ.

At some time in your work you may have to supervise the preparation of formulæ, and in some exigency may even have to prepare a formula for an infant. It is, therefore, an appropriate time to discuss the important question of formulæ. It is too large a subject to be covered in the little space that I can devote to it, but I shall describe one method which is commonly used, so that you may be fairly conversant with the subject, and so that you may not be handicapped when you are asked to prepare a feeding. As you know, there are innumerable methods of artificial feeding. All of these are probably efficient means of feeding infants, one perhaps being a little more cumbersome than another in calculation and preparation. However, if the nurse or doctor has a clear understanding of the needs of the case, and logically considers the feeding behavior of the child, and patiently sticks to his plan of procedure, any method of feeding will probably succeed. Most of our failures occur when a child does not seem to do well with a recommended formula and immediately we change to some other, entirely different. But just like we, who attempt to eat a new food for the first time, must gradually acquire a taste for this food, so the child must become accustomed to his new food. Unless there is a violent reaction to the introduced preparation, one should not be distressed by a little vomiting or gastrointestinal upset. This desire to try out the formula patiently is a rule which I cannot too strongly emphasize. I believe many troublesome feeders could be relieved if this was kept in mind.

The Whole Milk Dilution System.

Perhaps the simplest and most efficient method of artificial feeding is the whole milk dilution system. Nearly every case which you will have to supervise can be handled by this method. It is unwise, I believe, to prepare a very elaborate feeding with the introduction of many foreign foodstuffs in the milk, because at some time it will be necessary to put the baby on whole milk feedings. The distinct change from the formula to that of whole milk will be so unusual in its taste that the mother will have great difficulty in making the baby take it. So, always keep in mind simplicity of preparation, and always remember that nearly every feeding problem can be cleared up by this method.

In preparing our formulæ we recommend Grade-A milk, which is clean enough for all ordinary purposes. In the summer time and in very young infants, we recommend that all milk be boiled from three to five minutes even though it is a Grade-A preparation. This is an additional assurance of a clean milk. In the consideration of any feeding problem the following matters have to be kept in mind:

1. The general bodily demands of the youngster; is he fairly well developed and vigorous, is he malnourished, or has he a great distance to go before he comes to a normal state.
2. The total fluid requirements of the infant.
3. The total caloric requirements.
4. The fat requirements.
5. The protein requirements.

Past experiences have shown us that a child requires from two and one-half to three ounces of fluid per pound body weight in twenty-four hours; that a normal infant requires from thirty-five to forty-five calories per pound body weight in twenty-four hours; that 1.8 ounces of whole milk per pound body weight in twenty-four hours will supply the total fat needs of the child, and that 1.5 ounces of whole milk per pound body weight in twenty-four hours will supply all the protein needs of the infant. Because of the slight difference of 1.8 and 1.5, we assume that 1.5 ounces of whole milk per pound body weight will supply both the fat and protein requirements.

If a child has been malnourished and is underweight his caloric requirements may be far greater than those recommended. One cannot definitely determine what that child's caloric requirements are. It is only his demands and his failure to gain weight that give us an idea as to how we shall proceed. It may be that a child, even though he is old enough to take the theoretical amount and strength of food, is so malnourished that a much weaker solution will have to be given. We then must be contented with a slow gain. That is what I meant when I asked you to consider the bodily conditions of the child.

Example.

All this may be a little obscure to you, so that I shall show you by example how to prepare a formula. Let us say that the child is three months old, weighs ten pounds and is fairly nourished. For some reason the child must be weaned. What shall we feed it?

The total fluid requirement will be thirty ounces in twenty-four hours, — that is three ounces of fluid per pound body weight. Now for the milk requirements necessary to supply his fat and protein. We ordinarily do not consider the salt problem. I told you that one and one-half ounces of whole milk per pound body weight will supply these needs, — therefore, fifteen ounces of whole milk will be sufficient here. This leaves fifteen ounces of water to be added to the milk to make up the thirty ounces of necessary fluid intake. I told you that from thirty-five to forty-five calories per pound were essential in a baby that is fairly well nourished. We will assume that forty calories per pound will be sufficient here. This baby weighing ten pounds will require four hundred calories. It has been computed that one ounce of milk supplies twenty calories. We are giving this child fifteen ounces of milk. This gives us only three hundred calories. We must in some way make up one hundred calories. This is generally done by adding some sort of sugar. The formula that we have so far made gives us a low percentage of sugar. There is rarely a baby that cannot utilize from seven to eight per cent of sugar in a formula. I shall not make the problem more complicated by telling you how to determine percentages of sugar in a preparation, but I shall give you a short cut which you can use in this problem. It has been determined that a level tablespoon of sugar will add forty calories to a solution. Different sugars give a higher or lower reading, but for general considerations this estimate will be sufficient. Since we need one hundred calories more to fulfill our caloric, the addition of two and one-half level tablespoons of sugar will make up our needs. Since this baby will be fed every three hours during the day with one night feeding, this makes seven feedings in twenty-four hours making four and one-half ounces for each feeding.

KIND OF SUGAR USED.

You will of course want to know what sugar to use of the most popular milk sugars, dextri-maltoses or other proprietary sugars. This brings up a great problem which will require lengthy discussion, but which I cannot discuss at this time. Briefly stated the milk sugars have a more laxative action than the others and are more slowly and completely absorbed. Because it is so slowly broken down and so slowly absorbed it assists in the development of normal intestinal flora. However, when given in excess it is more likely than the other sugars to cause diarrhœa. Most babies do well on that sugar. The dextri-maltoses come in three forms — numbers one, two, and three — one containing some salt while the others do not. Roughly considered it does not make very much difference which one uses. These are more quickly absorbed and the intestines are not constantly flooded with excess sugar. This fact, however, is less favorable to the maintenance of the normal intestinal flora. Probably because of the easier assimilation of these sugars and their immediate utilizability the infant gains weight rapidly. Cane sugar is frequently prescribed with excellent results. But because in its breakdown it undergoes alcoholic fermentation it is less suitable for the development of intestinal flora. Perhaps it is so frequently substituted for milk sugar and the other sugars because it is less expensive. I shall not here discuss the use of many of the other commonly used proprietary sugars.

Rather than ask the mother to use rounded tablespoons, we recommend level tablespoons, because of the more standardized measurements that result in such a use. Recommending it in rounded tablespoons leads to many abuses, for the mother's conception of a rounded tablespoon may be far different from yours.

Our formula given to the mother will, therefore, read as follows:

Grade-A Whole Milk (boiled five minutes) . . .	fifteen ounces
Boiled water	fifteen ounces
Milk Sugar	two and one-half level tablespoons

Feed four and one-half ounces regularly every three hours, with one night feeding at one or two o'clock in the morning.

If the mother has succeeded in breaking the child of the habit of night feeding, so much the better. The amount of each feeding will, therefore, have to be computed on a six feeding basis per twenty-four hours. As you remember, I previously mentioned a rough method of calculating the amount at each feeding. Our results here obtained in the formula conform to the rough rule of an ounce to an ounce and one-half plus the baby's age.

It is sometimes advisable, particularly if the baby is constipated, to encourage giving boiled water between feedings, and to add small amounts of orange juice, to improve the bowels and to make sure the child is getting anti-scorbutic elements. It is safe to begin the use of diluted orange juice at two and one-half months of age, starting with teaspoon amounts diluted twice, and gradually increasing the amount so that at six months of age he is taking two ounces of orange juice plus three ounces of boiled water per day. This drink can be given an hour before feeding or better still, given as an introductory drink an hour before the morning's feeding.

Relief of Belching.

Some children will belch a great deal, or their vomitus may contain large tough protein curds. The boiling of the milk will break up some of these curds. The addition of lime water also aids this and relieves some of the child's belching. If such a condition exists and you are thinking of adding lime water, you must add of this at least twenty per cent of the milk introduced in the formula. This added lime water will have to be deducted from the total water introduced. Our formula will, therefore, read:

Whole Milk	fifteen ounces
Boiled Water	twelve ounces
Lime Water	three ounces
Milk Sugar	two and one-half level tablespoons.

Of course the boiling of the milk and the addition of lime water may constipate the child, but it is much better to relieve the child of vomiting and the discomfort of belching, and to assure oneself of a retained milk intake, than to be worried over a slight constipation which can be overcome by fluids, orange juice, and the massage and exercise which I described.

Solid Food.

After the baby is about five months of age, it is advisable to start on feedings of solid food. We probably keep solid food away from the infant too long. The habit of some mothers of the slums of giving their children solid feedings of food of varied character early probably accounts for the vigor, excellent musculature and color which they show in spite of their adverse environment. At five months of age, orange juice plus simple cereals and zwieback can safely be given. Cereals should be cooked for several hours even though the package directions state otherwise. Begin with a level tablespoon. No sugar should be added, because the baby can get along without it. Spinach juice can be begun at seven months of age. A little later beef juice, which contains considerable extractives, can be given in small amounts, beginning with a teaspoon and gradually increasing to about an ounce or so daily. At about eight to nine months of age very small amounts of mashed potato covered with beef or spinach juice can be added to the diet. Towards the end of the year give various broths whose fat has been skimmed off. One may alternate this with beef juice. These broths have very little nutritive value, but they serve as excellent vehicles for other foods which the baby ordinarily refuses; and they frequently act as a stimulant to his appetite.

It is not wise to introduce any other solids like meat or eggs until the child is past his fifteenth or eighteenth month. I am merely suggesting this diet to you and I am not going into any detail, because many excellent printed diets for infants of this age have been prepared for your use. I merely wish to repeat that a more varied solid diet than is now ordinarily used should be started. Of course this means that the diet should be added with discretion and should be given because of the variety added rather than bulk considered.

In this talk I have discussed many matters which I thought you would find useful in your work with infants. It has covered a variety of fields that I had to hit upon to make the subject more complete. If I have left nothing more with you than the realization that breast-feeding is the only feeding for an infant, I shall have fulfilled my purpose. Do not allow your patients or yourselves to be carried away by the apparent success of modern formula preparation, that can always be resorted to whenever necessary. You will not be fulfilling your duty as a nurse and as a servant of public health unless you exert every means to influence your patient to give her child her best initial investment for health, which will insure her infant against the rigorous demands to which he is subjected in his early years.

THE EDUCATIONAL PROGRAM IN A MATERNAL AND INFANT HYGIENE CAMPAIGN.

By Frances Klein, S.B., Associate Editor, Massachusetts Department of Public Health.

An outline of educational principles and methods dealt with under the following headings:

I. The Audience
   1. Direct Teaching
   2. Indirect Teaching
II. A Practical State Plan
III. Special Considerations in Maternal and Infant Hygiene Work
IV. Publicity Methods
V. Details of a Campaign
VI. Principles of Educational Work, with examples
VII. Conclusions

The Reason for the Program.

Seven thousand infants under one year of age die yearly in Massachusetts.

Seven hundred mothers die from causes connected with childbirth.

Why?

Before formulating an intelligent program we should be able to answer this question. We cannot at present. We know, however, that earlier and more regular prenatal care would help safeguard both lives involved. And we know that breast-feeding would save many babies who are dying from unsuited artificial feeding. The problem to be considered is therefore twofold:

(1) To make a searching study into Causes of death.

(2) To concentrate the educational work on the above two points which are proven. The educational work may be broadened when the study into causes is completed.

The Audience.

Having decided upon two fundamental facts — the need of prenatal care, and the importance of breast-feeding — the first step in the educational program is to study the "audience." The aim is, of course, to reach the mothers, directly or indirectly.

Direct Teaching. — In direct teaching we deal with a group of lay people — some intelligent, many ignorant. We deal with large numbers, which makes it difficult and expensive for a State Department. In direct teaching we do not have the loss from material never reaching its destination; we do, however, have the problem of individual differences — which makes one person put a pamphlet into the waste-basket, and another pin it up on the wall.

Indirect Teaching. — Although it is the mother who is the object of all our maternal and infant hygiene teaching, much can be done by working directly with key people — doctors, nurses, teachers who will hand on information to the desired persons. In this kind of teaching we deal with technical groups. Teaching is less expensive, because there are fewer persons and fewer points of view. Less time is involved in preparation of technical material. The lesson is more surely driven home, because the so-called key people represent professional groups which have most influence with the laymen.

A PRACTICAL STATE PLAN.

A practical state plan will include both types of teaching, but for the most part indirect teaching. This is the policy of Massachusetts. The State Department of Public Health supplies the medical and nursing professions with technical material — through literature, conferences, and exhibits. The information is received and handed on in a form suited to the type of audience. In addition, popular material prepared by the Department is distributed locally through Boards of Health, physicians, and nurses.

Take a specific case: the latest facts on breast-feeding were outlined in a technical form, giving scientific references. Physicians read this and received probably several suggestions for influencing a mother to nurse her infant. As actual ammunition, a popular flyer containing much the same information, was available for every mother to keep and consult.

The Department has a great deal of educational material — literature, posters, slides, moving pictures — which is intended for lay people. The actual contact, however, is and should be made by the local organizations. They have more influence and their work is on firmer foundations. Each suggestion given a nurse is passed on to perhaps 100 people in a week. In this way the results obtained by the Department are greater.

SPECIAL CONSIDERATIONS IN MATERNAL AND INFANT HYGIENE WORK.

Health work in the schools is being so well received and so attractively carried out that the maternal and infant hygiene teaching is a little discouraging by comparison. But if, before beginning work, we study the period as a special problem, results will not be disappointing, because:

(1) We are dealing largely with a passing generation — whose customs often indicate ignorance, whose religion is burdened with many superstitions, whose very language is in many cases foreign.

(2) We are dealing with adults. This makes teaching much more expensive and unsatisfactory than with children. Ideas and notions are very hard to change; habits almost impossible.

(3) To be successful we must begin teaching at the prenatal period. There is something intangible and mysterious about this time. Frank talk about it is repulsive to some. At the least, it is extremely personal. It is impossible to teach the facts through the children.

Fortunately there are some advantages in teaching mothers. Mothers are extremely generous for their children. A mother will do almost anything if she is convinced it will save her infant's life.

PUBLICITY METHODS.

In teaching health we make use of a great many so-called "publicity methods," which aim to put the subject before the public in an unobtrusive but forceful manner.

Newspapers and Magazines.

News Items. — There is some question about giving maternal and infant hygiene information in news articles. A fact which is accepted without thought in a special column often arouses indignation appearing in a news story.

Feature Articles. — Feature articles, such as a doctor's column, have been very successful. This is probably because people expect to find personal information in this particular place. The one danger is that of prescribing for individuals.

Advertising. — The Massachusetts Department of Public Health has run one prenatal advertisement in the papers of the State. The reaction was slow in coming back, but as far as we can determine it was favorable. There are three considerations in advertising:

(1) The copy, which should be brief, striking, and to the point.

(2) Follow-up copy. One insertion of an advertisement will not leave much impression. Repeated emphasis of a subject is what counts.

(3) Choice of newspapers. In selecting papers consider first what people you wish to reach. In Massachusetts we decided that the mothers in the large cities were more nearly provided for than those in rural places. As the budget was limited, we chose small papers, mostly weeklies. This choice would not be economical in all cases. Although advertising is more expensive in the big papers, the circulation of the paper is so large that the advertising is actually less per capita.

Direct-by-mail Advertising.

Direct-by-mail advertising is a commercial term. The Massachusetts Department of Public Health has what might correspond to this in a series of prenatal and postnatal letters. The names for the mailing list are obtained from Boards of Health, physicians, nurses, and interested neighbors. A letter is sent every month before the baby's birth, and for two years after. The letters are intended to supplement the doctor's advice. They are prepared by the Department with the help of the leading specialists in the medical profession and are available in Italian as well as in English.

Special groups are circularized on occasion, as for example on the subject of the Schick work.

This letter service has many advantages. It goes out direct to a selected group. Therefore there is very little waste. The message can be more personal than if published for general distribution.

Literature.

Besides the prenatal and postnatal letters, the Department distributes, free of charge, to citizens of Massachusetts the following literature related to maternal and infant hygiene:

The Baby and You — a popular booklet giving both prenatal and postnatal advice in more or less detail.
Suggestions For Care During Pregnancy — a graphic folder listing in simple terms the most important points.
Breast-Feeding — a popular "reason why" folder. This also answers arguments and gives suggestions.
Latest Facts about Breast-Feeding — a technical leaflet.
Diet Slips — up to two years.
The Care of the Baby in Hot Weather.
Weight cards — for infants and adults.
Literature on general health, food, and mouth hygiene; both popular and technical.

As was stated before, this literature is intended to supplement the doctor's advice. The ideal place of distribution is therefore from the doctor's office. However, through nurses in stores and factories as well as district and public health nurses, through social workers, and through the church a great deal can be done.

Posters.

Very attractive health habit posters, some of which illustrate nursery rhymes, are available for children, but up to the present time very few exist for the prenatal and early infant period. There is a big field for posters on this subject in hospital and dispensary waiting rooms, in settlement houses, and in mothers' rest rooms at the parks and playgrounds. The trouble with most of those in existence now is that they are unattractive, and are covered with too much printing. This is bad both because of the appearance of the poster and because too many ideas at once leave no impression.

Slides.

At special mothers' meetings and mothers' classes fairly technical slides may be used. The Massachusetts Department of Public Health has a set of maternal and infant hygiene slides which give valuable information in an appealing way.

When slides are designed to run between the films in a motion picture house, we must consider that we are presenting a subject to a mixed audience, made up largely of young people who are attending for the purpose of amusement rather than of instruction. There is the mob reaction to consider as well. The Department has attempted to get around this by addressing the mothers in the first slide of its series of six. Three of these are on prenatal care and two on breast-feeding. The appeal in both cases is made through the number of infant lives which might be saved.

After talking with a great many moving picture managers, it seems advisable to cut down the series, and use one, or at the most two slides. The managers are more willing to take these, and the audience does not get so impatient. Then, too, the operator has not the responsibility of keeping the series in order.

Moving Pictures.

Even if public opinion would sanction a moving picture on maternal and infant hygiene, the general motion picture house is not the place for this special information. Groups of mothers can, however, be reached through various nursing organizations. The motion pictures might be used as a drawing card for a meeting at which talks and demonstrations on maternal and infant care are to be given.

Exhibits.

There is great value in carefully thought out exhibits. First, the exhibit should be live — either by actual working models or three dimension displays of some sort. In a small exhibit have some central attraction to bring out the main point. The rest of the exhibit should be arranged to add to this point, not to bring up new subjects. The general public will not grasp very many ideas at one time.

Another consideration is the follow-up work. An exhibit is very quickly forgotten unless there is some arrangement for follow-up. This might be in the form of a striking flyer, which should emphasize the same points brought out in the exhibit. The best way is to have a local nurse, who is well liked, in attendance at the exhibit. She will be able to answer questions, and to make suggestions in an unobtrusive way. If alert, she will accumulate a list of new patients, who have either suggested troubles or who have actually given the nurse their confidence.

Besides the exhibit for popular appeal, there is the strictly technical exhibit. This is used to advantage at specialized meetings and conferences. One of the main functions of this type of exhibit is to answer the question "Where can I find information on such and such a subject?" Mimeographed lists of books and pamphlets will take the place of flyers for follow-up.

A State Department should not be satisfied to advertise that it has "a child welfare exhibit, which can be borrowed free of charge." Although an exhibit may fill its purpose very well at several different occasions, it should be considered as a distinctly variable thing. Consider not only the type of audience, but also the mood it is in. The atmosphere at a Health Show is different from that of an agricultural Fair; the baby department of a department store is still different. It is essential to think of an exhibit from the point of view of the audience — not that of the exhibitor.

Talks and Lectures.

Barring the exceptional speech which stirs an audience through the personality of the speaker, a talk in itself is the least appealing method of teaching. It should be illustrated by posters, slides, or actual demonstrations in order to hold the interest of the lay person.

A detached lecture is also ineffective as a rule. (By detached I mean the kind of lecture which is given by a technical speaker to a general audience. The speaker rises on the platform and disappears after the applause.) Lectures given by authorities at a study course or conference are very worth while, especially if there is a discussion period or question box.

Radio.

The mixed audience makes it difficult to use specific information.

Conferences and Study Courses.

For reaching specialized groups, such as nurses and doctors, conferences and study courses are by far the most fruitful methods. Professional leaders should be engaged to present the subjects and should give sufficient time to answer questions. The Massachusetts Department of Public Health has recently conducted a series of study-courses, which will be described in another article in this issue of The Commonhealth.

Special Features.

Blotters, health stamps, unusual folders are all useful in "advertising." For teaching maternal and infant care, a grocery order or calendar would be more appropriate than a blotter, which is most serviceable to business men. Visualize a home, and then devise some helpful scheme which could be used as an advertising medium.

Campaigns.

A campaign is an event which makes use of all publicity methods at one time to get across to the public or to some special group a definite piece of information. It must culminate at some particular time, in order that there be a news hook for the publicity. A steady effort is not a campaign in the strict sense unless there is some special bang.

So many "Weeks" have been labeled for campaigning purposes that it is humorous — if not monotonous. For this reason it is best to avoid the term "Baby Week," or what not, although the campaign will undoubtedly culminate in one week.

Given a worthy cause, the first consideration in a campaign is to plan the staging of events of popular interest. The publicity will then almost take care of itself. Following is a brief outline showing how the State resources were lined up in a state-wide "Baby's Rights Campaign."

DETAILS OF A CAMPAIGN.

Subject.

Breast-Feeding is the subject which the Massachusetts Department of Public Health wished to emphasize in a baby campaign. Because of false modesty a more general term had to be chosen and the name "Baby's Rights Campaign" was decided upon. The more popular aspect was then a drive for better baby care, whereas all personal contacts — the folders, the talks, and the nurses' conferences — were devoted to breast-feeding.

Personnel.

Although a Committee appointed by the Department handled the technical end of the Campaign, all actual work was carried out by the local people. The Department enlisted the co-operation of the Boards of Health, physicians, hospitals, nursing organizations, social workers, and stores, insurance companies, and motion picture houses.

Technique.

The Department detailed the Division of Hygiene nurses for the month preceding the Campaign to visit the Boards of Health and Visiting Nurse Associations in order to present the Campaign to them. They agreed to assist in the following ways:

(1) Distribute the popular breast-feeding flyer.
(2) Arrange for demonstrations in department stores.
(3) Visit the mothers of newborn babies.
(4) Give talks to lay groups.
(5) Communicate with the local newspapers.

In the larger communities local committees were formed to take charge of this work.

At the same time the Commissioner of Public Health sent a letter to Boards of Health with an announcement of the Campaign, and to all physicians and registered nurses in the State. A medical folder giving the latest facts on breast-feeding was enclosed, as well as an announcement of the Infants' Hospital Wet Nurse Directory.

Newspaper Publicity.

Three advance notices, one week apart, were sent out by the Department to all the papers in the State. In addition the Commissioner sent a letter to all editors, asking for their help through the editorial columns. The actual publicity for the week of activity was carried on by the local communities.

Material Available from the Department.

The following material was prepared and distributed by the Department:

Breast-Feeding — a popular flyer.
Latest Facts About Breast-Feeding — a medical folder.
Notes for a lecture on breast-feeding.
Suggestions for Department Store Demonstrations.
List of books on prenatal and infant care.
A multigraphed outline of campaign plans.

How the Localities responded.

Sixty-six thousand, six hundred requests were received for the popular flyer, largely through Boards of Health and nursing organizations.

Department stores advertised and carried through special demonstrations in Springfield, Fall River, New Bedford, Lowell, Cambridge, Worcester, Lawrence, and Salem. It is quite probable that demonstrations were carried on in other places from which we have not yet received reports.

Slides in sets of five were shown through the courtesy of motion picture houses in Springfield, Holyoke, Ware, Palmer, Northampton, Fall River and Lynn.

The newspapers of the State helped a great deal by printing not only the advance notices, but also special interviews and demonstrations.

PRINCIPLES OF EDUCATIONAL WORK.

In all educational work, no matter what methods we choose to use, there are certain principles which must be observed. A well-known writer gives the three principles of rhetoric as follows: Unity, Coherence, Force. These principles apply not only to writing but also to posters, exhibits, slides, lectures. Inexperienced workers often make the mistake of crowding too much into one poster or exhibit, for fear that they will leave out some important point. The spectator's eye wanders over the display restlessly, not knowing what to look at. And the result is that he takes away nothing — not one idea of the many.

Planning.

Whatever educational method you decide upon, approximately the same schedule of planning is necessary.

(1) The audience; plane of intelligence, and mood; prejudices.
(2) The subject matter: what is it, and in what form will it appeal.
(3) The form: choice of central idea, and subordination of related ideas.

There follow several examples to illustrate the application of these educational principles.

Examples.

Suppose a small amount of money is available for some literature on infant care. An organization publishes a booklet on thin paper, with fine type and very small margins. A great deal of first class information is put into three or four pages. Nobody reads them. Is this saving money? Many organizations have this very problem.

The pamphlet is revised. A more attractive paper and much larger type is used. A part of the money is put into an attractive baby sketch. Only a few facts are selected, and these are headed up with catchy titles. You can almost read the folder at a glance, and it is pleasing to look at. Mothers pin it up on their walls for reference.

A poster on prenatal care; a little of everything! Pictures strewn about — 8 or 9 lines of printed advice. Mothers should not have to look at that sort of thing. It is distracting. At most they do not carry away an impression.

You choose one important topic, the need of proper diet during pregnancy. The poster is devoted to an artistic grouping of good foods, and a simple slogan, taking two lines, appears underneath. You do not lament because you left out the question of dental care, or shoes. That can appear on another poster. You give the mothers only one idea — but this gets across.

Study an attractive store window. The exhibitor does not display evening dresses, sport shoes, and bathing suits at one time, though they are all apparel for human beings. In an evening dress display everything harmonizes; the accessories are feather fans, or ear-rings, adding a touch to the central object of interest.

CONCLUSIONS.

(1) A State Department produces greatest results by working with key people, and by distributing popular information through them.

(2) Prejudices must not be ignored, but must be overcome.

(3) It is not economical to get ahead of public opinion. If the people object to prenatal information in a newspaper, it is not wise to antagonize them, but to work slowly.

(4) Results should not be determined by the quantity of material for a given amount of money. It is not the number of words to a page that counts, but the number read and remembered.

(5) Simple, forceful literature is one problem. Distribution is equally important.

(6) Literature which has not a selected distribution must be all the more attractive and appealing.

(7) Educational work should be planned from the point of view of the recipient — not of the donor.

THE MATERNAL AND INFANT HYGIENE STUDY COURSE FOR NURSES, 1923.

By MARY R. LAKEMAN, M.D., ASSISTANT DIRECTOR, DIVISION OF HYGIENE, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

IN order to bring before the public health nurses of the State the new and rapidly developing plans of the Division of Hygiene, to secure their intelligent co-operation in these plans, and to raise the standards of nursing work in the field of maternal and infant hygiene, the Division of Hygiene has, during the past winter, conducted a series of nine lecture courses consisting of three all-day sessions, one each week. These were planned primarily for the benefit of public health nurses, but directors of Visiting Nurse Associations, members of Boards of Health, student nurses, and others interested in technical nursing problems were included in the groups attending the lectures.

THE PROGRAM.

The course was given in Boston, Springfield, Lowell, New Bedford, Fall River, Worcester, Greenfield, Pittsfield, and Sandwich (one day only). The program was practically identical in each course given. The first day's program, after a statement of the general principles underlying maternal and infant hygiene, covered the main features of prenatal care; the second day, the essentials in maternity care and an adequate maternity service for a community; the third day's program, infant feeding and special factors of importance in a well-balanced maternity service. The subjects treated were, in general, as follows:

Prenatal Care.

General Principles Underlying Maternal and Infant Hygiene.
Medical Care of the Pregnant Woman.
Nursing Care of the Pregnant Woman.
Pregnancy Clinics.
Mothers' Classes. Demonstration.
Question Period.

Maternal Care.

Technique of Maternity Nursing Care.
Care of the Newborn and of the Premature Infant.
Maternity Nursing Care as a Community Problem.
Community Responsibility for Maternity Service.
Maternity Service in this District.
Question Period.

Special Factors in Prenatal and Maternity Care.

Infant Care.
The Family of the Syphilitic Child.
Mouth Hygiene.
Nutrition.
Mental Hygiene in Pregnancy and Early Infancy.
State Service in Maternal and Infant Hygiene.

In the last three of the series, a lecture on Preventable Mental Defects and Nervous Instability was added with good effect.

A small exhibit of posters and a few good books were shown. In Boston an opportunity was given and generally taken advantage of, to visit the new Boston Lying-In Hospital and the Robinson Memorial Maternity Hospital.

ATTENDANCE.

Attendance varied from an average for the three days of one hundred and twenty in Boston to fifteen in Greenfield. The total estimated number of persons reached was four hundred and eighty-one. Boston 120, Springfield 47, Lowell 45, New Bedford 43, Fall River 94, Worcester 64, Greenfield 15, Pittsfield 28, Sandwich 15.

As there are probably slightly over one thousand public health nurses actively employed in the State and as the attendance was largely made up of public health nurses, this number would seem to be such as to warrant the necessary expenditure and to justify future efforts along similar lines.

The Department was fortunate in securing the active assistance of sixteen physicians, two Red Cross field workers, a nursing supervisor of the Boston Lying-In Hospital, a dentist, and a member of the staff of the Robinson Memorial Hospital to round out the course which, aside from this valuable assistance, was given by members of the staff of the State Department of Public Health.

The Department is deeply indebted to its friends, Dr. Fritz Talbot, Dr. Robert DeNormandie, Dr. Robert Curtis, Dr. Eli Romberg, Dr. Edward P. Ruggles of Boston; Dr. John Talbot, Dr. Gardner Cobb, Dr. Merrick Lincoln and Dr. Manley Root of Worcester; Dr. Richard Benner and Dr. Alexander Eastman of Springfield; Dr. Brace W. Paddock and Dr. Charles T. Leslie of Pittsfield; Dr. Edmund Cody of New Bedford; and Dr. Edward B. Terhune of Stockbridge; Miss Sarah Fisher and Miss Mary K. Nelson of the New England Red Cross; Miss Miriam Ames of the Boston Community Health Association; Miss Helen Fowler and Miss Grace Bulmer of the Boston Lying-In Hospital, who contributed generously of their time at no inconsiderable sacrifice and inconvenience to their own interests. With such a high type of service ready to respond to its call, it will indeed be strange if Massachusetts is not able to make notable progress in developing effective methods in the protection of maternal and infant lives and health.

Besides the main object which it was hoped would be attained through the giving of these courses, it was anticipated that the close contact brought about between the Department staff and the field workers could not fail to create a better understanding and, in consequence, a closer co-ordination of local work with the program of the State as a whole. That this has taken place and that the good effects of such a mingling of workers will continue and will increase with benefit to both groups, cannot for a moment be questioned by one who has taken any part in this course of lectures.

A STATISTICAL STUDY OF ONE HUNDRED CÆSAREAN SECTIONS.[1]

By Angeline D. Hamblen, A.B., Statistician, Massachusetts Department of Public Health.

THERE has been some discussion lately relative to the increasing number of Cæsarean sections performed. The feeling seems to be prevalent that this operation is too often resorted to when other methods of delivery might better serve the interests of mother and child. From replies to a questionnaire that was sent to all the maternity hospitals in Massachusetts, it was ascertained that there were 1,161[2] Cæsarean sections performed in this state in 1922. There were 90,904 births (including stillbirths[3]) in the state for the same year, and one out of every 78 births was a Cæsarean. There were 102 deaths following Cæsarean sections in 1922 in the state giving a fatality rate of 8.8 per 100. That is one woman out of every 11 women who had a Cæsarean section, died. There were 671 deaths in the state for 1922 from all causes during pregnancy and confinement, or there was one death following Cæsarean section in every 7 maternal deaths.

In order to show more in detail the conditions, the following study was made of the histories of 100 Cæsarean sections performed in Massachusetts in 1922 and 1923. The homes of these women, the doctors attending them, and the hospitals in which they were delivered were visited by physicians from the Massachusetts Department of Public Health.

The primary indication for Cæsarean section in 38 per cent of the cases was obstruction due either to malformation of mother or child, or disproportion between size of head and birth canal, or tumor. Toxemia (including toxemia of pregnancy, pernicious vomiting of pregnancy, and eclampsia) was the primary indication in 25 per cent of the cases. The most frequent primary cause of death was septicemia which was found in 30 instances.

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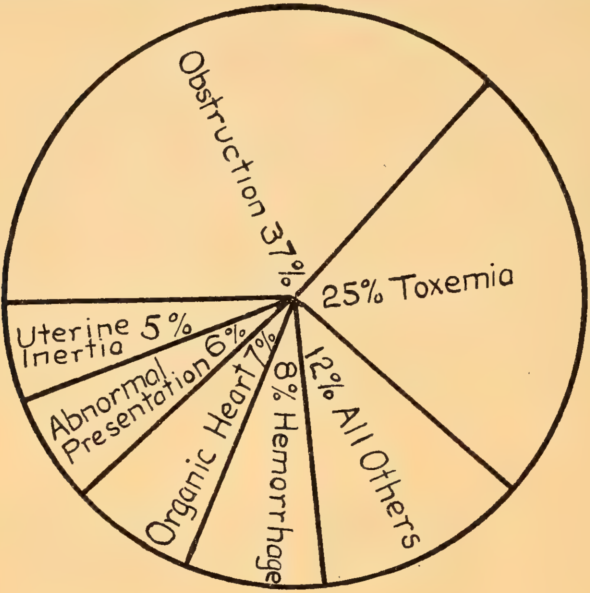
[1] The writer wishes to acknowledge with thanks the helpful criticisms and suggestions of Dr. Robert De Normandie, Member of the Department's Advisory Committee on Maternal and Child Hygiene.

[2] Replies were not received from a few of the smaller hospitals and it is probable that the total number of Cæsarean sections was slightly larger.

[3] Figures from State Registrar of Vital Statistics.

Indication for Caesarean Section



Cause of Death

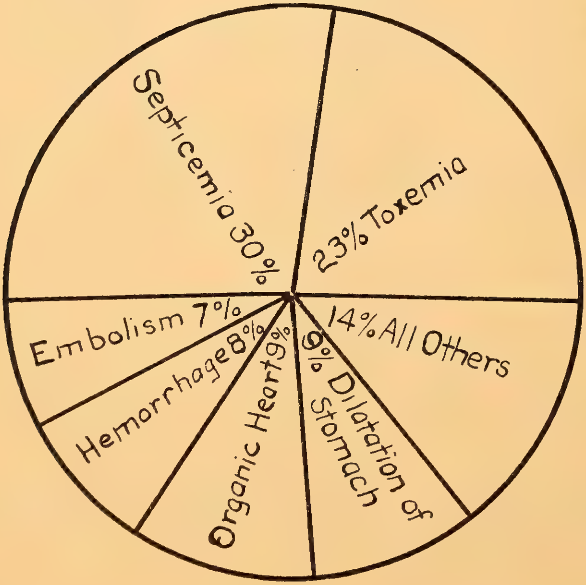


TABLE I. — *Primary Indication for Cæsarean Section and Primary Cause of Death.*

PRIMARY INDICATION FOR CÆSAREAN SECTION.	PRIMARY CAUSE OF DEATH.																
	Septicæmia.	Toxemia.	Organic Heart.	Dilatation of Stomach.	Embolism.	Hemorrhage.	Shock.	Heart and Kidney.	Kidney.	Tuberculosis.	Rupture of Uterus.	Dystocia.	Acute Dilatation of Heart.	Gastro Enteritis.	Broncho Pneumonia.	Total.	
Malformation of infant	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	
Contracted pelvis	15	1	–	4	1	1	–	–	1	–	–	–	1	1	–	25	
Disproportion	3	–	–	2	–	–	1	–	–	–	–	1	–	–	–	7	37
Obstruction (fibroids of uterus, 3; obesity, 1)	1	–	1	2	–	–	–	–	–	–	–	–	–	–	–	4	
Toxemia	1	19	–	–	1	1	–	1	1	1	–	–	–	–	–	25	
Hemorrhage	3	1	–	–	–	4	–	–	–	–	–	–	–	–	–	8	
Organic heart	1	–	6	–	–	–	–	–	–	–	–	–	–	–	–	7	
Abnormal presentation	2	1	–	–	1	2	–	–	–	–	–	–	–	–	–	6	
Uterine inertia	3	–	–	–	1	–	1	–	–	–	–	–	–	–	–	5	
Previous Cæsarean	–	–	–	–	1	–	–	–	–	–	–	–	1	–	1	3	
Kidney	–	–	–	1	–	–	–	1	1	–	–	–	–	–	–	3	
Heart and kidney	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Ruptured uterus	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	
Previous operation for prolapse with ant. fixation of uterus	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	
Malposition of cervix	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	
Request of patient	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	
Irregular fœtal heart 156–170 in 7 hr. period	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	
Total	30	23	7	9	7	8	3	2	4	1	1	1	2	1	1	100	

The class of women who are having Cæsarean Sections done are chiefly those born in the United States, whose mothers were born in the United States, and who have a comfortable income.

TABLE II. — *Birthplace and Race Stock.*

BIRTHPLACE.	American.	Irish.	Canadian.	Italian.	Scotch.	English.	Greek.	Russian.	Jewish.	French.	Portuguese.	Negro.	Swedish.	Dane.	Syrian.	Finn.	Unknown.	Total.
United States	28	11	7	2	3	3	–	3	1	2	1	1	–	–	–	–	1	63
Canada	–	–	7	–	–	–	–	–	–	3	–	–	–	–	–	–	–	10
Ireland	–	7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7
Italy	–	–	–	5	–	–	–	–	–	–	–	–	–	–	–	–	–	5
Greece	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–	4
Russia	–	–	–	–	–	–	–	1	2	–	–	–	–	–	–	–	–	3
England	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	2
Portugal	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
Denmark	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Turkey	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
West Indies	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
Sweden	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
Finland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Total	28	18	14	7	4	4	4	4	3	5	2	2	1	1	1	1	1	100

TABLE III. — *Income.*

WEEKLY INCOME.	Number.
Under $20	3
$20–$29	15
$30–$39	11
$40 and more	10
Poor	8
Fair	6
Good	34
Unknown	13
	100

The age at which most of the mothers died was between 25 and 30. In 65 per cent of the cases this was the first pregnancy.

TABLE IV. — *Age and Total Number of Pregnancies.*

TOTAL NUMBER OF PREGNANCIES.	Under 20.	20–24.	25–29.	30–34.	35–39.	40–44.	45 and more.	Total.
1	4	15	21	12	8	4	1	65
2	1	3	4	1	2	1	–	12
3	–	–	1	1	1	–	–	3
4	–	–	–	1	3	–	–	4
5	–	–	4	–	–	–	–	4
6	–	–	1	4	1	–	–	6
7	–	–	–	1	–	–	–	1
8	–	–	–	1	1	–	–	2
9	–	–	–	–	2	–	–	2
10	–	–	–	–	–	1	–	1
Total	5	18	31	21	18	6	1	100

Obstruction was the primary indication for Cæsarean section in 36 per cent of the cases among the primiparæ while among the multiparæ without previous Cæsarean section, obstruction was the primary indication in 39 per cent of the cases. Toxemia was the primary indication in 29 per cent of the cases among the primiparæ and 17 per cent among the multiparæ without previous Cæsarean section.

TABLE V. — *Primiparæ.*

INDICATION FOR CÆSAREAN.	Cause of Death.	Vaginal Examination.	Fate of Child.
Toxemia (hepatic type)	Toxemia	No	Stillborn.
Toxemia; acute nephritis, toxic vomiting	Toxemia	Yes	Stillborn.
Toxemia	Toxemia	Yes	Stillborn.
Toxemia	Toxemia	No	Premature; died in 3 days.
Eclampsia	Eclampsia	–	Premature; died in 7 months.
Eclampsia	Eclampsia	No	Stillborn; maternal eclampsia.
Eclampsia	Eclampsia	No	Living.
Eclampsia	Eclampsia	No	Twins; 1 died at 5 months, dysentery; 1 living.
Eclampsia	Eclampsia	–	Living.
Eclampsia	Eclampsia	–	Living.
Eclampsia	Eclampsia	–	Living.

TABLE V. — *Primiparæ* — Concluded.

INDICATION FOR CÆSAREAN.	Cause of Death.	Vaginal Examination.	Fate of Child.
Eclampsia	Eclampsia	–	Living.
Eclampsia	Eclampsia	–	Living.
Eclampsia	Eclampsia	–	Premature; died in 1 week.
Eclampsia	Uremia	–	Unknown.
Eclampsia	Embolism	–	Living.
Eclampsia; placenta prævia	Toxemia; hemorrhage	No	Living.
Toxemia	Tuberculosis	–	Living.
Toxemia; chronic nephritis	Heart and kidney condition.	–	Premature; died in few minutes.
Contracted pelvis	Septicemia	Yes	Living.
Contracted pelvis	Septicemia	Yes	Living.
Contracted pelvis	Septicemia	Yes	Living.
Contracted pelvis	Septicemia	Yes	Living.
Contracted pelvis	Septicemia	Yes	Living.
Contracted pelvis	Septicemia	–	Living.
Contracted pelvis	Embolism	Yes	Living.
Contracted pelvis	Acute dilatation of stomach.	Yes	Living.
Contracted pelvis	Acute dilatation of stomach.	Yes	Living.
Contracted pelvis	Intestinal obstruction	Yes	Living.
Contracted pelvis	Acute nephritis	–	Stillborn.
Contracted pelvis; large head; breech presentation.	Septicemia	–	Died in 2 weeks; hydrocephalus; spina bifida meningitis.
Contracted pelvis; abnormally small vagina	Peritonitis	Yes	Living.
Flat pelvis; fibroid nephritis	Toxemia	Yes	Living.
Malformation of infant	Embolism	No	Stillborn; hydrocephalus.
Abnormal presentation	Hemorrhage	–	Living.
Posterior position in primiparous pelvis with floating head and large baby.	Hemorrhage	No	Living.
Posterior position in primiparous pelvis; large baby.	Peritonitis	Yes	Stillborn, due to delayed delivery.
Abnormal presentation	Embolism	Yes	Living.
Abnormal presentation	Peritonitis	Yes	Stillborn.
Transverse position	Eclampsia	Yes	Living.
Uterine inertia	Septicemia	Yes	Living.
Uterine inertia	Septicemia	No	Premature; died in 5 weeks; enteritis.
Uterine inertia	Septicemia	Yes	Living.
Uterine inertia	Surgical shock	–	Living.
Uterine inertia	Pulmonary embolism	–	Living.
Hemorrhage	Hemorrhage	No	Stillborn, due to placenta prævia.
Hemorrhage	Hemorrhage	–	Stillborn, due to premature separation of placenta.
Hemorrhage	Toxemia and placenta previa.	No	Living.
Hemorrhage	Septicemia	Yes	Living.
Hemorrhage	Septicemia	No	Lived 12 hours; cong. cardiac.
Disproportion	Septicemia	–	Living.
Disproportion	Septicemia	–	Living.
Slow labor; failure of head to engage	Acute dilatation of stomach.	No	Living.
Long, hard labor; failure of head to engage; large baby; large head.	Septicemia	Yes	Living.
Suspension of uterus; failure of head to engage.	Dilatation of stomach	–	Living.
Fibroid of uterus	Intestinal obstruction	–	Stillborn.
Fibroid of uterus	Heart or shock	Yes	Living.
Multiple fibroids of uterus	Septicemia	No	Living.
Obesity toxemia	Ileus septicemia	No	Living.
Mitral regurgitation	Heart condition	No	Living.
Fatty heart; myocarditis	Heart condition	Yes	Died in few minutes; difficult labor.
Heart condition; breech presentation; no dilatation after trial labor.	Heart condition	–	Living.
Mitral stenosis and regurgitation	Heart condition	–	Living.
Mitral regurgitation	Heart condition	No	Died in 2 weeks; prematurity.
Request of patient	Embolism	No	Living.
Irregular fœtal heart, 156–170 in 7 hour period	Peritonitis	Yes	Living.

There were 23 mothers who were multiparæ without previous Cæsarean section. Malformation, including 8 cases of contracted pelvis and one monstrosity, was the indication for the Cæsarean section in 9 instances, toxemia in 4, organic heart disease in 2, heart and kidney condition in 3, and hemmorrhage in 3. Septicemia was the cause of death in 7 cases, toxemia in 4, hemorrhage in 3, and dilation of stomach in 2. In 5 instances in which the woman had a contracted pelvis she died from septicemia. In 4 of these 5, vaginal examinations preceded operation.

TABLE VI. — *Multiparæ Without Previous Cæsarean Section.*

Total Number of Pregnancies.	Number of Living Children.	Age of Mother.	Indication for Cæsarean.	Cause of Death.
2	2	23	Aortic stenosis; mitral regurgitation.	General peritonitis and operation.
2	1 (first baby stillborn; cause unknown).	28	Contracted pelvis	Septicemia.
2	2	28	Contracted pelvis	Septicemia.
2	0 (both stillborn; 1 dystocia, 1 premature separation of placenta).	43	Toxemia of pregnancy; premature separation of placenta.	Uterine hemorrhage.
2	1 (last baby died at two months; pertussis).	23	Heart condition	Acute dilatation of heart.
2	1 (1 died due to prematurity and difficult labor).	34	Operation for prolapse with fixation of uterus; eclampsia.	Eclampsia.
2	2	22	Contracted pelvis	Ileus and pneumonia.
3	2 (last pregnancy twins; premature; lived 4 hours).	30	Heart and kidney condition.	Ileus.
4	2 (last baby premature; lived 2 days; 1 baby died of pneumonia).	36	Toxemia	Toxemia.
4	3 (last baby monstrosity)	38	Malformation of infant	Dystocia.
5	4 (first baby stillborn)	26	Contracted pelvis	Septicemia.
5	4	29	Toxemia	Toxemia.
6	5 (last baby lived 18 days)	30	Flat pelvis and suspected placenta prævia.	General peritonitis and operation.
6	5 (1 miscarriage in 1920)	39	Heart and kidney condition	Nephritis.
6	3 (last baby stillborn; albuminuria of mother; 1 child died; pneumonia).	28	Toxemia	Toxemia.
6	3 (1 child died at 9 months; 1 child died at 12 hours; mother had influenza; 1 child died at 2 days; bled to death from circumcision).	33	Malposition of cervix	Surgical shock.
6	1 (eldest living; 5 stillborn)	30	Contracted pelvis; 5 stillborn children.	Gastroenteritis; broncho-pneumonia.
7	3 (3 miscarriages; last baby lived 1 month).	34	Placenta prævia	Septicemia.
8	4 (3 lived only a few hours; last baby stillborn).	30	Contracted pelvis	Acute dilatation of heart.
8	1 (first baby died at 6 months, albuminuria; second, miscarriage at 5 months; third, full term; died at birth; forceps delivery; 4 miscarriages before fifth month).	36	Contracted pelvis	Septicemia.
9	4 (last baby stillborn; 1 other stillborn).	37	Internal hemorrhage	Hemorrhage; nephritis.
9	5 (4 miscarriages)	36	Hemorrhage	Hemorrhage; placenta previa.
10	8 (1 miscarriage)	40	Heart and kidney condition	Heart and kidney condition.

Of the 23 multiparæ without previous Cæsarean section, 7 were delivered of stillborn children. A pair of twins, seven months premature, died in four or five hours.

Eleven mothers had had previous Cæsarean section. Of these, 6 had had one Cæsarean section, 2 had had 2 Cæsarean sections, 2 had had 3 Cæsarean sections and 1 had had 4 Cæsarean sections. Three of the mothers were chronic nephritis cases and 5 had contracted pelvis.

TABLE VII. — *Mothers Who Had Had Previous Cæsarean Section.*

Total Number of Pregnancies.	Number of Previous Cæsarean Sections.	Number of Living Children.	Age of Mother.	Indication for Cæsarean Section.	Cause of Death.
2	1	2	19	Contracted pelvis and previous Cæsarean section.	Hemorrhage.
2	1	2	35	Previous Cæsarean section.	Pulmonary embolism.
2	1	1 (first child lived three-quarters of an hour; eclampsia of mother).	37	Toxemia; chronic nephritis; previous Cæsarean section.	Eclampsia.
2	1	2	26	Contracted pelvis; previous Cæsarean section.	Septicemia.
2	1	0 (first baby stillborn; this pregnancy, twins, 1 stillborn, 1 died first day).	29	Chronic nephritis; toxemia; previous Cæsarean section.	Septicemia.
4	2	3 (first baby stillborn)	33	Torn cervix; disproportion; previous Cæsarean.	Shock.
4	3	4	34	Uremia; previous Cæsarean section.	Uremia.
4	3	4	32	Previous Cæsareans	Broncho-pnuemonia.
5	4	2 (no record of others)	28	Contracted pelvis; previous Cæsareans.	Septicemia.
5	1	4 (1 died first day; placenta prævia).	31	Previous Cæsarean	Acute dilatation of heart.
6	2	5 (last baby stillborn)	32	Spontaneous rupture of uterus; malformed pelvis.	Ruptured uterus; septicemia.

Twenty-nine mothers had no prenatal care or had prenatal care for less than one month. Fifty-four mothers had prenatal care for one month or more.

In 9 instances information relative to prenatal care was not obtainable. In 8 instances the mother was known to have had some prenatal care but the duration was unknown.

TABLE VIII. — *Length of Prenatal Care.*

No prenatal care	24
"Some prenatal care"	8
Prenatal care for less than 1 month	5
Prenatal care for 1 month	3
Prenatal care for 2 months	5
Prenatal care for 3 months	7
Prenatal care for 4 months	5
Prenatal care for 5 months	6
Prenatal care for 6 months	7
Prenatal care for 7 months	7
Prenatal care for 8 months or throughout pregnancy	14
Unknown	9

Figures for the blood pressure were given in 34 instances. The highest was 280 systolic pressure and the lowest 100. The blood pressure was stated normal or negative in 22 cases.

In 6 instances out of 23 where the woman died of toxemia she had had no prenatal care. 13 women had had prenatal care for from 2 to 5 months. Four had had prenatal care throughout pregnancy. Toxic symptoms were noted in one of these cases only a few days before the operation, in 1 two days before operation, in 1, for a week or two. In 10 instances the figures for the blood pressure were given. The highest was 210 systolic and the lowest was 110.

TABLE IX. — *Length of Labor.*

Labor not begun	34
Labor lasted 1 hour	1
Labor lasted 2 hours	2
Labor lasted 3–4 hours	4
Labor lasted 5–8 hours	6
Labor lasted 9–23 hours	9
Labor lasted 24 hours	7
Labor lasted 25–48 hours	6
Labor lasted 1–5 days	1
Labor lasted 3–4 days	3
Labor was "short"	2
Labor was "long"	1
Length of labor not obtainable	24

In 34 cases Cæsarean section was done before labor began. In 15 cases Cæsarean section was done early or during the first stage of labor. In 20 cases Cæsarean section was done late or during the second stage of labor. In 31 cases the stage of labor was unknown.

Thirty-one mothers had not had a vaginal examination. Thirty-three mothers had had one or more vaginal examinations. In 36 cases the history did not state whether the woman had or had not had a vaginal examination. Of the 33 women who had had vaginal examination 18, or 55 per cent, died from septicemia. Also it may be noted that out of 100 deaths following Cæsarean section, 30 were due to septicemia, 18 of which had had a vaginal examination. Of the 31 who did not have a vaginal examination 5 had septicemia. One of these 5 cases was complicated by fibroids of the uterus, one by rupture of the uterus, one by chronic salpingitis, and two by placenta prævia.

In 9 cases, there was considerable hemorrhage before delivery. In 7 instances hemorrhage occurred during or after delivery.

All were delivered in a hospital. Forty-two went to the hospital as an emergency measure. Sixteen of these had had no prenatal care.

Twenty mothers left no living children.

Sixty-eight mothers left from 1 to 3 living children.

TABLE X. — *Number of Living Children.*

Number of Living Children Each Mother Left.	Total Number of Living Children.	Number of Mothers.
–	–	20
1	52	52
2	18	9
3	21	7
4	28	7
5	15	3
6	6	1
10	10	1
–	150	100

Twenty babies delivered by Cæsarean section were stillborn, 6 due to toxemia of the mother, 2, to dystocia, 2, to difficult labor, 2, to premature separation of placenta, 2, to malformation of child, 1 each to asphyxia, albuminuria of mother, intestinal obstruction of mother, and placenta prævia, and 2 to unknown causes. Six babies died within 24 hours. Ten babies died afterward. Sixty-seven babies lived.

TABLE XI. — *Fate of Baby and Month of Gestation.*

	Premature 7 Months.	Premature 8 Months.	Full Term.	Unknown.	Total.
Stillborn	4	1[1]	14	1	20
Born alive but died	4[2]	5[1]	7[3]	2	18
Lived	2	5	54[3]	4	65
Total	10	11	75	7	103

[1] Twins; 1 stillborn; 1 died same day.
[2] 2 were twins.
[3] A pair of twins; 1 died; 1 lived.

In 13 cases of placenta prævia, only 5 babies were alive when last heard from. Three were born alive but died, 1 of congenital heart disease at the end of 12 hours, 1 of jaundice and infantile erysipelas at 18 days, and 1 from prematurity at 1 month. Five were stillborn.

Through the courtesy of the doctors, hospitals, and relatives of the mothers, we have been able to collect these data. They have been regarded from a purely statistical point of view and are presented here that physicians may know what has been the experience of the State as a whole, and with the hope that this knowledge will help them to decide what is best for the mothers and infants who come under their care.

A SURVEY AND WHAT MIGHT BE DONE ABOUT IT.

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THE Massachusetts Department of Public Health is making a series of surveys of child hygiene activities in the cities and towns of the Commonwealth. This paper is a brief discussion of one of these surveys as well as a discussion of certain concrete applications of the following basic principles:

1. In public health work we must have some sort of a survey in order to know where we stand; most of our errors come from jumping hastily at objectives only dimly seen or understood.
2. In order to see the situation in a given community in the proper perspective, we must have a definite idea as to relative values in public health work.
3. We must take into consideration the requirements of the law.
4. We must know the agencies operating in the community — both public and private — and their relationship to one another.
5. We must know how much money the town can reasonably be asked to spend.
6. Most important of all, we must remember that it does not pay to get too far ahead of public opinion.

We have in the State of Massachusetts 355 cities and towns each independent of the other and able to carry on public health activities if it wants to and has the necessary money. Some towns are doing such work through municipal funds. Some work only through private agencies. Some employ a combination of these methods. The last named, for various reasons which will appear later, seems to be the best method.

In making a state-wide survey the Department is actuated by two motives: (1) to get the facts; and (2) to be of assistance to the local communities. It is getting the facts — some 230 communities have already been surveyed. These facts are most interesting and instructive. They will be at the service of any interested community which wants to increase its activities and of any interested citizen who wants to help his community do something. Furthermore, the Department will from time to time make recommendations to the responsible authorities of the different municipalities as to possible ways in which they may further promote maternal and child hygiene.

As a concrete illustration of what this all means let us discuss in detail the situation of a community of approximately 20,000 inhabitants.

This community has had for the past five years an infant mortality ranging from 110 in 1918 to 71 in 1922 per thousand live births. It had 35 deaths of infants under one year of age in 1922. It also had 15 stillbirths during that year, or 43 per cent as many stillbirths as deaths under one year of age. The town has a community water supply and a common sewerage system. It spent during 1922 about 85 cents per capita for health work under the board of health. This includes, however, a comparatively large expenditure for garbage collection which is not, of course, primarily a health job at all and should be charged up elsewhere. Considerably more than half the total expenditure was for the two items, communicable diseases and garbage collection.

The population of the town is somewhat varied, though the foreign element is said to be decreasing. There are several high grade industries employing twelve hundred or more persons.

The Board of Health furnishes no nursing service except in the case of tuberculosis and other communicable diseases. There are one school nurse and one dental hygienist attached to the schools. There are also a school physician, a school dentist, and a full time physical director. There is no special nutrition worker in the schools though domestic science activities are carried on. There are no hot lunches or milk furnished the pupils.

The community has a hospital with twenty beds for obstetrical cases; few free patients are taken. There is a visiting nurse association employing two nurses who, in addition to the usual bedside work, give prenatal and postnatal service, though the prenatal work is slight in amount.

Housing conditions are good in this community.

Let us turn back for a moment and look at these various elements in the public health situation of the town we are surveying. We are dealing with a community which apparently ought to have no insuperable or even very difficult problems in public health. It is spending more money than the average town for health. As we have already seen, however, some of this money is going for one activity, at least, which ought not to be charged up to health. The infant mortality is higher than it ought to be, though not particularly out of proportion as compared with other communities of the same size in the State. The ups and downs of the infant mortality curve show lack of control. The proportion of deaths under one month of age to total deaths under one year of age is about the usual one. The same is true of the stillbirths.

Right here, however, is a point worth noting. We usually omit the stillbirths from our calculations of infant mortality. Yet the suffering, the disappointment and the loss to the family are just as great if the baby does not breathe at all as if he breathed for a few minutes. In the community under discussion if we count in the stillbirths as deaths we find that more than 75 per cent of the deaths under one year of life occurred under one month of life.

Let us consider now the adequacy of the community resources and activity concerned in the promotion of public health, particularly as regards maternal and child hygiene.

1. *Board of Health.* — No nursing activities to speak of except those in connection with tuberculosis and other communicable disease are carried on by the board of health; there is no infant or child hygiene work; no prenatal care. This automatically cuts out all the newer measures for the promotion of maternal and child hygiene and throws the entire community responsibility upon private agencies which depend for existence upon the charitable impulses of a few public-spirited citizens. The activities enumerated above are all educational in nature and should be sponsored in part at least by the organized community as a whole.

2. *School Committee.* — This committee, in the supervision of the health of the school child, employs a part-time school physician, a part-time dentist, a whole-time school nurse, a whole-time dental hygienist, and for carrying out the law on physical education, a whole-time woman physical director. These workers serve 3,300 pupils in the public schools.

This staff is reasonably complete as present-day practice goes. Nevertheless, a school nurse ought not to be responsible for so many school children, two thousand being more than enough. However, her contributions to the teaching of health habits in the schools ought to be greatly supplemented by that of the dental hygienist. The school nurse ought, therefore, to be able to spend a correspondingly greater time in home visiting which is the more important end of the school nurse's work.

In the latest available town report (for 1920–1921) the school physician rendered no separate report so that it is impossible to judge how nearly the law is complied with which requires a complete physical examination of every school child every year.

The school dental activities of this community bring up an interesting question. The state law allows communities to spend municipal money for dental, medical or health clinics and to conduct educational campaigns in connection therewith, but such clinics must be under the supervision of the board of health. This community is not complying with the law in expending its money for dental work under the school committee. The work of the dental hygienist in conducting toothbrush drills and in other ways teaching to the children the importance of oral hygiene, probably would not be open to the legal objection referred to above.

The work done by the instructor in physical education represents a valuable step in the direction of child hygiene.

3. *Visiting Nurse Association.* — This private, charitable organization employs two nurses with automobile transportation to give bedside care and educational service to a population of 20,000. Five nurses could not do it if the service were generally taken advantage of by the public. Few homes are too rich and none too poor to need at least occasional service from such an association. If those who can pay are charged the full cost of the call, there is no charity involved; otherwise there is. Such an organization ought to have a large number of prenatal patients, should in fact include amongst its patients the larger proportion of prospective mothers. It should assist the physician at a goodly proportion of deliveries and should have many postnatal cases. This type of work represents its real contribution to public health.

During 1922 the Visiting Nurse Association in this community was able to reach only 15 prenatal patients, whereas it reached 103 postnatal cases. There is no record of the number reached at the time of delivery. The small number reached with prenatal care is discouraging. Prenatal care is our mainstay in the reduction of maternal and early infant mortality, and the stillbirth rate. A campaign of information is apparently necessary in this town to convince medical profession and laity of this fact.

After this brief discussion, let us see if it is possible to formulate any hints which might reasonably be taken advantage of by the various community agencies interested.

I. The Board of Health.

The board of health could profitably undertake more public health nursing along the line of child hygiene.

(*a*) *Baby Hygiene.*

(1) Every newborn baby should be visited at least once to make sure that it is getting the health supervision it needs. This nurse can do much to encourage breast feeding which in itself will save many lives.

(2) Mothers should be supplied with popular written matter on the care of the baby and should be urged to keep their babies under medical supervision.

(3) Well baby conferences might be held where children could be weighed at regular intervals and their hygiene supervised. These conferences should never become sick baby clinics; the treatment of the sick baby belongs with the private physician or the dispensary. In any case, whether the baby be sick or well, his parents should be encouraged to consult the family physician.

(4) A campaign of education should be started as to the need of prenatal care and the part it plays in the reduction of maternal and early infant mortality and stillbirths.

(*b*) *Hygiene of the Pre-School Age Child.*

This child is hard to reach. His health needs lie chiefly in the direction of nutrition, mouth hygiene, formation of health habits and above all, formation of good mental habits. These needs can all be met, to a cetain extent, in what usually goes by the name of a nutrition class. Nutrition work is not merely a matter of weighing and measuring and food. All the good health habits must be taught at the same time and mental health habits should be included. Such a class or conference should be under the supervision of an interested and competent physician assisted by a nurse. The advice of a trained nutrition worker is highly desirable; there should be one or more available in every large community.

(*c*) *Control of Communicable Diseases.*

Anything which the board can do to control the incidence of measles, whooping cough, diphtheria and other communicable diseases common among children should be counted as child hygiene work. A Schick clinic falls within this category. A good tuberculosis dispensary is a factor in child hygiene if children are examined there who have been exposed to tuberculosis. A venereal disease clinic contributes toward child hygiene by helping to abate the part which syphilis plays in stillbirths and infant mortality.

(*d*) *Dental Hygiene.*

Under the law, if a dental dispensary is conducted through the use of municipal funds, it must be under the control of the Board of Health. This rule is not being followed in the community in question. A dental dispensary should be handled carefully, however. Filling cavities in children's teeth can hardly be called preventive work in the sense in which this phrase is usually — and rightfully — used. The dental activities which should be stressed are the efforts to get children to keep their teeth clean, to eat the proper food and to go to the dentist at regular intervals. This phase of preventive work is usually best exemplified by what the dental hygienist does.

(*e*) *Co-operation with School Committee.*

Too often this is halting or lacking. Both board of health and school committee have a responsibility for the health of the school child. The school committee cannot handle the matter alone since we cannot leave out of the picture the health of the child's parents, brothers and sisters, and the sanitation of his home surroundings. Moreover, the board of health has complete charge of the communicable disease situation both outside and inside the school. The ideal way is to have both boards draw up jointly rules and regulations which will cover such matters as children returning to school after communicable disease, exclusion from school for such causes and the various other points of contact of the two boards.

(*f*) *Private Schools.*

The board of health should offer medical supervision to the private schools as a health measure. They need it as much as do the public schools. The school committee cannot, of course, give this type of service.

II. The School Committee.

The school committee can do its share towards promoting child hygiene by making the most of its medical supervision. It should see to it that the law is strictly followed which requires a careful annual physical examination of every child in the public schools. It can, furthermore, work closely with the board of health in this medical supervision for the reasons given in our discussion of the board of health activities.

(a) *Dental Clinics.*

The dental clinic should be placed under the supervision of the board of health both because the law requires it and because such a clinic is more in keeping with the functions of a health department than of a school department. Again, if under the board of health, the clinic can meet also the need of the child of pre-school age.

(b) *School Physician.*

There is work enough in a town of this size for a whole-time school physician at a decent salary if the health of the school children is to be supervised adequately. Such a school physician should be in general charge of all the school hygiene activities. He might well be made an agent of the board of health to help make smooth the relationships involved with this board.

(c) *School Nursing.*

It might well be advised that as soon as possible the school nursing should be augmented. At any rate the work of the school nurse and that of the dental hygienist should be so apportioned that the nurse should be able to spend more than half her time in follow-up work in the homes. She should be given the use of an automobile which in itself would increase by fifty per cent the effectiveness of her work.

III. Visiting Nurse Association.

This association should be a very important factor in the promotion of maternal and child hygiene. Its interests should include far more than bedside nursing.

(a) *Prenatal Care.*

In most communities it is to the visiting nurse association that we must look for prenatal nursing. The visiting nurses should be so ethical in their relationship to the practicing physician and should be able to make themselves so indispensable that no first-class physician would think of doing without their services in any confinement case. Evidently this is not yet the case in the community in question, since the nurses are giving prenatal care to only a negligible number of the prospective mothers.

(b) *Obstetrical Care.*

We have to rely entirely upon the visiting nurse for this. The board of health cannot give this service logically since it is bedside care. The records in the community under discussion do not show how many cases are handled in a year, hence, it cannot be said how adequately the need is being met.

(c) *Postnatal Service.*

Here is another great chance for the visiting nurse to contribute to maternal and infant hygiene. Apparently in the community we are dealing with this service is the one which has been most adequately met of those already discussed. Here again the visiting nurse has the field almost to herself.

IV. Hospital Service.

A well run hospital with an adequate supply of obstetrical beds can be a great factor in maternal and infant hygiene. There ought to be sufficient provision for necessary free beds. The hospital records should be complete and well arranged. The hospital should work in close co-operation with the other public health forces in the community.

I have sketched briefly the salient points in the public health problem of this Massachusetts town and have hinted at some ways in which, to an unbiased outside observer, improvements could be made or new activities inaugurated. It is always easier to make suggestions than to carry them out. Yet none of these suggestions is difficult to put into effect; some of them require only a rearrangement of existing activities; all depend upon an appreciation of relative values; and none should be in advance of public opinion.

THE COMMONHEALTH.

QUARTERLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
FRANCES KLEIN, S. B., ASSOCIATE EDITOR.
Room 546, State House, Boston, Mass.

George Chandler Whipple. — The entire personnel of the State Department of Public Health learned with regret that Professor George C. Whipple, who has represented the great field of sanitary engineering on the Public Health Council of this Department ever since its organization in 1914, had declined a reappointment for another term.

For the nine years of his service Professor Whipple has given unsparingly of his time, thought, and pen in the furtherance of the Department's work and of the public health of the entire State.

The pressure of other obligations has become so great that Professor Whipple reluctantly decided that he must sever his connection with this Department. — E. R. KELLEY.

Infant Mortality During 1922. — As usual one of the events of the year for the child hygiene worker is the report of the past year's infant mortality record. After it appears we check up to see if we can explain it — and usually we cannot! This year is no exception to the rule.

Massachusetts in 1922 had a state rate of a little over 81 deaths per thousand live births. In 1921 our rate was 76; the year before it was 91; the year before that 88. During the last twenty-two years the pendulum effect has been noticeable for two periods; from 1900 to 1910 and from 1918 to the present time. It is quite visible from 1900 to 1910. Then there is a steady drop until 1918 — the influenza year when the rate rose to 113. This was followed by a drop of 25 points which represents the maximum swing of the pendulum in the 22 years. In 1921 the State had the lowest infant mortality in its history as did many other places as well. The infant mortality of 1922 is the next to the lowest in the State's history — by some seven points.

Meditating on mortality is an unsatisfactory performance at best and the infant mortality forms no exception to the rule. The propagandist is always unduly elated when the rate temporarily goes down and unduly depressed when it temporarily goes up. The real lesson to be learned, apparently, is that as yet we but imperfectly comprehend the causes of infant mortality especially the remote causes. The encouraging fact remains that in Massachusetts as in the country as a whole the infant mortality is slowly reaching new low figures.

Annual Meeting of the American Public Health Association. — The annual meeting of the American Public Health Association is coming. Officials from all over the continent will gather together in Boston October 8th to 11th to discuss vital public health problems, and will return to all parts of the continent with new enthusiasm, new inspiration and new ideas.

The American Public Health Association is about to celebrate its 52d birthday. For an association this is comparatively young, and yet many milestones have been laid in public health during the last half century. Improved sanitation has resulted in safe water supplies; discoveries in the field of bacteriology have made possible the control of many major infections; and a new era of public health has been born — the consideration of personal hygiene as well as of community hygiene. Health is being rated as something more than freedom from disease. Programs for protecting maternity and infancy are just being organized and offer our greatest chance of saving life and promoting happiness.

In saving lives and in making life more worth living the American Public Health Association has a promising future.

The Boston Health Show, October 6 to 13, 1923. — The Commissioner of Health of the City of Boston, the Commissioner of Public Health of the Commonwealth, and the health and social organizations of Boston have united in a notable public health demonstration in the Boston Health Show which will take place in Mechanics Building, Boston, October 6 to 13, embracing the period of the meeting of the American Public Health Association October 8 to 11.

The leading public health agencies of the country have exercised their utmost ingenuity for years through the ordinary channels of publicity, and each year popular health education has broadened its scope, but the public health official is not yet satisfied that he has arrested the attention of the general public. It was in order to interest the man in the street that the Cincinnati Public Health Federation in October 1921 began the first of a series of great public health expositions, which in the present year have extended throughout the country.

As far as is known, there has been no definite attempt to measure accurately the results of a health show. We know that the attendance of the Cincinnati exposition was estimated at over 150,000 people, and that similar shows in other large cities of the country have often attracted as many as 50,000 people. The management in Cincinnati feels the show in that city brought about certain definite results, notably a better understanding and appreciation of public health by the retail business interests of the city. In another state it is said that there has been a greater demand for sanitation, and more especially that the feature of complete or partial physical examination has brought a largely increased number of persons to the family physician and to the local institutions and organizations for further advice and treatment.

It is interesting to observe that in this exposition all the health and social agencies and major institutions in Boston having to do with public health are concerned, if not directly at least through a council, or federation, or group. When it is considered that there are 135 agencies represented in the Boston Council alone, without mentioning the hospitals, the recreational organizations and the medical societies, it will be seen what a concerted effort has been made in this show to present the cause of public health to the citizens of Boston and the visiting public.

NEW APPOINTMENTS.

Mr. James Lawrence Tighe has been appointed to the Public Health Council. Mr. Tighe is a well-known Consulting Engineer of Holyoke.

Dr. Elliot S. A. Robinson has been appointed as Assistant Director of the Antitoxin and Vaccine Laboratory, Division of Biologic Laboratories of the State Department of Public Health, vice Dr. Robert N. Nye who has been appointed to a position with the Thorndike Memorial at the Boston City Hospital.

LETTER TO THE EDITOR.

June 12, 1923.

Dear Sir: — An earnest effort is being made by the American Medical Aid for Russia, the Medical Division of the American Friends Service Committee (Quakers), to collect money, clothing, instruments, books and journals for our medical colleagues in Russia.

The condition of these men is deplorable. Removed happily by nature of their profession from the Political disturbance, they have suffered doubly from the troubles of the last six years in that, while the demands for their assistance have multiplied immensely, they have been almost deprived of medical supplies, indeed, even of the necessities of life. They not only lack the barest necessities of food and clothing, but are terribly in need of drugs, medical and surgical instruments and of scientific books and journals in English.

The Quakers are in a position to assure American physicians who are willing to assist their Russian colleagues, that contributions will be promptly and efficiently distributed in Russia. Literature will be distributed in co-operation with the Russian Health Department through notices printed in the official bulletin, to the effect that medical literature in English is available and can be had on request. The Quaker relief workers will directly supervise the distribution of this material to Russian hospitals, medical schools and individual physicians.

If every one of us would make his personal effort to help send such money and clothes as he can, to send files of journals which he does not use himself, as well as such medical books and instruments as he can spare, it would be an immense help.

It's not a charity; it's a duty.

Yours sincerely,

W. S. Thayer.

NOTICE.

The Massachusetts Department of Public Health has a portable dental chair and foot engine which may be borrowed by any community.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of April, May and June 1923, samples were collected in 133 cities and towns.

There were 1,994 samples of milk examined, of which 560 were below standard, 53 samples had the cream removed, 42 samples contained added water, 1 sample of skimmed milk was obtained above the legal standard, and 3 samples of skimmed milk were below the legal standard.

There were 189 samples of food examined, of which 53 were adulterated. These consisted of 1 sample of flavoring extract which was not properly labeled; 22 samples of sausage, 10 samples of which contained starch in excess of 2 per cent, 8 samples contained sodium sulphite, 3 samples contained coloring matter, and 1 sample was decomposed; 3 samples of pork loins which were decomposed; 13 samples of olive oil which contained cottonseed oil; 8 samples of butter, of which 1 sample was rancid, and 7 samples were low in fat; 3 samples of vinegar which were low in acid; 1 sample of horse feed which contained lead arsenate; and 2 samples of strawberries which were decomposed.

There were 49 samples of drugs examined, of which 18 were adulterated. These consisted of 1 sample of spirit of nitrous ether, and 1 sample of spirit of peppermint, both of which were low in the active ingredient; 1 sample of magnesium citrate which contained sulphate; and 15 samples of jamaica ginger which were not double strength as per the label.

The police departments submitted 1,426 samples of liquor for examination, 1,325 of which were above 2.75 per cent in alcohol. The police departments also submitted 42 samples of drugs for examination, 16 of which were morphine, 14 opium, 7 cocaine, 1 heroin, 1 codein, and 3 samples examined for poison with negative results.

There were 53 hearings held, and 3 warnings issued, pertaining to violations of the food and drug laws.

There were 59 convictions for violations of the law, $1,501 in fines being imposed.

Mrs. Inez H. Chapin of Sterling; Leroy F. Gould of Framingham; Hilma Helin, Fanny Laitinen, Michael Mustanen, and Wilho Puranen, all of Fitchburg; Samuel Tivman, on 2 cases, and Christi Connos, both of Springfield; Nicolla Iannacci of Woburn; Antone Benevides of Swansea; and Albert Mayowski of South Hadley Falls, were all convicted for violations of the milk laws.

John Baron, Michael Borowik, Joseph H. Duclos, and Adelard Montnimy, each on 2 counts, all of Fall River; Arno Heintz of Easthampton; Joseph P. Janik of Chicopee; Kazirmerz Godek, on 2 cases, Wladyslaw Nowak, on 2 cases, Orphir Tessier, William Beaudoin, Sylvester Jagodowski, John Moskal, John Rzeszotarski, George Thivierge, and Gustave Labossiere, all of Holyoke; Abram Gunsenhiser Company, Sichel Provision Company, and John Cicalis, all of Boston; and Arthur Papas of Lynn, were all convicted for violations of the food laws. John Baron, Michael Borowik, Joseph H. Duclos, and Adelard Montnimy, each on 2 counts, all of Fall River, appealed their cases.

George Armenis and Vincinzi Billitti of Boston were convicted for misbranding.

Joseph Edner, Empire Spice Company, Inc., on 2 cases, National Extract & Chemical Company, Meyer Sedersky, 2 counts, Samuel L. Sulkin, Harry Gross, and Samuel Zion, all of Boston; Western Refining Company, Inc. of Lowell; and David Shaw of Lawrence, were all convicted for violations of the drug laws. Harry Gross and Samuel Zion of Boston appealed their cases.

John Gruber, George A. Tuller, and Samuel Nager, on 2 cases, all of Great Barrington; Angelina Sivestre of Lawrence; and Stowell Cummings of Cheshire, were all convicted for violations of the slaughtering laws.

Frank Rotstein, Israel Weiner, and Samuel Weiner of Boston; Jacob Rubin, Julius Rubin, Albert Sachs, and Samuel Taylor, all of New Bedford; and Benjamin L. Kimball of Springfield, were all convicted for violations of the mattress laws. Israel Weiner and Samuel Weiner of Boston appealed their cases.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufactures, wholesalers, or producers:

Milk which contained added water was produced as follows: 11 samples, by Joseph A. Nunes of Somerset; 8 samples, by Michael Gorman of North Abington; 4 samples, by Frank Frodyma of West Springfield; and 3 samples each, by Albert Mayowski of South Hadley Falls, and Antone Benevitz of Swansea.

Milk which had the cream removed was produced as follows: 4 samples, by Marian S. Furtado of Swansea; 3 samples, by John Martin of Fall River; and 1 sample each, by Isaac Tripp of North Westport, and John Pavoa of Swansea.

Sausage which contained starch in excess of 2 per cent was obtained as follows: 2 samples from Wladyslaw Nowak of Holyoke; and 1 sample each, from Joseph P. Janik of Chicopee, Nowak & Godek, Zasadzinski & Rzeszotarski, and John Moskal, all of Holyoke.

Two samples of sausage which contained sodium sulphite were obtained from Arno Heintz of Easthampton.

Two samples of sausage which contained coloring matter were obtained from Max Garber of Boston.

Three samples of pork loins which were decomposed were obtained from Armour & Company of Holyoke.

Olive oil which contained cottonseed oil was obtained as follows: 4 samples from George Armenis Company of Boston; and 1 sample each, from Kalramados & Marmarelles of New York, Calamata Grocery Company of Boston, A. Giacaris of Fall River, and Arthur J. Papas of Lynn.

Two samples of strawberries which were decomposed were obtained from John Colaroso of Boston.

Butter which was low in fat was obtained as follows: 3 samples from Beatrice Creamery Company of Springfield; and 1 sample each, from H. P. Hood & Sons of Lawrence; Worcester Public Market, Armour & Company, and Tait Brothers, all of Worcester.

The Inspector of Haverhill submitted a sample of horse feed, which upon examination was found to contain lead arsenate.

There were twelve confiscations, consisting of 754 pounds of decomposed fowls, 62 pounds of dried out beef chucks, 136 pounds of decomposed beef rolls, 103 pounds of decomposed beef tenderloins, 5 pounds of decomposed frankforts, 60 pounds of dried out mutton, 1,885 pounds of rancid pork, 119 pounds of decomposed pork butts, 2,074 pounds of decomposed pork loins, 1,873 pounds of decomposed pork shoulders, and 60 pounds of tainted veal.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of March, 1923: 1,065,240 dozens of case eggs, 72,968 pounds of broken out eggs, 519,554 pounds of butter, 727,661 pounds of poultry, 5,223,422 pounds of fresh meat and fresh meat products, and 561,146 pounds of fresh food fish.

There was on hand April 1, 1923, 593,710 dozens of case eggs, 406,107 pounds of broken out eggs, 560,863 pounds of butter, 9,250,475½ pounds of poultry, 20,966,778 pounds of fresh meat and fresh meat products, and 1,451,199 pounds of fresh food fish.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of April, 1923: 7,075,470 dozens of case eggs, 492,799 pounds of broken out eggs, 527,629 pounds of butter, 744,510 pounds of poultry, 4,575,264 pounds of fresh meat and fresh meat products, and 1,431,675 pounds of fresh food fish.

There was on hand May 1, 1923, 6,624,390 dozens of case eggs, 628,394 pounds of broken out eggs, 223,161 pounds of butter, 7,596,144 pounds of poultry, 21,582,372 pounds of fresh meat and fresh meat products, and 1,958,718 pounds of fresh food fish.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of May, 1923: 10,409,610 dozens of case eggs, 957,810 pounds of broken out eggs, 753,589 pounds of butter, 887,604 pounds of poultry, 3,621,854 pounds of fresh meat and fresh meat products, and 2,813,245 pounds of fresh food fish.

There was on hand June 1, 1923, 16,137,990 dozens of case eggs, 1,261,520 pounds of broken out eggs, 420,123 pounds of butter, 6,294,872 pounds of poultry, 20,627,990 pounds of fresh meat and fresh meat products, and 4,031,692 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, EUGENE R. KELLEY, M.D.

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MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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PREVENTION OF HEART DISEASE.

BY WILLIAM H. ROBEY, M.D., ASSISTANT PROFESSOR OF MEDICINE IN HARVARD UNIVERSITY, VICE PRESIDENT OF THE BOSTON ASSOCIATION FOR THE PREVENTION AND RELIEF OF HEART DISEASE.

THE structure and work of the normal heart must be kept in mind by all who would study the organ in the presence of disease. The valves, muscle, pericardium and coronary vessels may be the seat of disease, singly or in varying combinations, the valves (endocarditis) the muscle (myocarditis) the pericardium (pericarditis) and coronary vessels (coronary disease; arterio-sclerosis). In health the heart works with perfect regularity, each auricular contraction is followed by a ventricular contraction in regular sequence, on the average 72 per minute.

THE MEANING OF HEART FAILURE.

To the intelligent physician the term "Heart Failure" means that because of a diseased condition of some or all of its structures the heart is failing to perform its normal amount of work. Any heart which does not function normally is beginning to fail. Sometimes the heart fails suddenly and death ensues immediately, as in certain forms of coronary disease, but more often the failure is gradual, extending over a period of years, producing a progressively increasing state of invalidism. The heart muscle supplies the force which maintains the flow of blood through the body and lungs. The normal heart and circulation are so adjusted that the work of the heart is facilitated, but a disturbance in any part of the heart or other organs increases the work of maintaining the circulation and eventually leads to overwork and failure of the heart muscle. So long as the heart can overcome the effects of disease and maintain the circulation normally, no symptoms are produced, but when too great a strain is put upon it, signs of failure and exhaustion appear.

THE CAUSES OF HEART FAILURE.

Any condition which produces structural pathological changes in the heart valves, muscle, blood vessels, or other organs, will lead eventually to heart failure. These conditions in the order of frequency are arterio-sclerosis, rheumatic fever, scarlet fever, syphilis and diphtheria. Other infections such as pneumonia, typhoid fever and tuberculosis may effect the cardiac structures but they are less important. Overwork of the heart muscle may be produced by nervous influences such as hyperthyroidism and hypertension.

THE ARTERIO-SCLEROTIC HEART.

The production of arterio-sclerosis is brought about in a variety of ways. Sir William Osler once said that it was difficult to assign any one cause for the condition in America. The effects of various infections, the wear and tear of American life and the indulgence in numerous excesses are all factors in arterio-sclerosis. Old age frequently ends with coronary disease, and sudden death from the blocking off of a branch of the coronary artery is not uncommon. It is not unusual to read in the paper of the death of a prominent citizen who, while apparently in good health, was seized with acute indigestion and died in an hour or two. The indigestion is simply one sign in the symptom complex of coronary disease. Angina pectoris or pain about the heart in the elderly is often another subjective symptom in this condition. Pain about the heart, breathlessness, with or without exertion, and easy fatigue are all symptoms which in the middle-aged and old should always be taken seriously, even though the physical examination is not marked by striking physical defects. If coronary disease must produce death in a certain number of people let us see to it that the disease is produced by the use of blood vessels over a long term of years and does not occur in middle life through infections and other preventable causes.

RHEUMATIC FEVER.

Rheumatic fever is the cause of many cases of serious heart disease in children and young adults. The fever is accompanied by redness, swelling and pain in the large joints and fingers and moves about from day to day. Little is known about the infecting agents in rheumatic fever although much investigation has been carried out on the subject. We do know, however, something about the foci of infection, the most prominent of which are the tonsils and the teeth. The writer has followed a considerable number of patients over a period of years and is convinced that tonsillectomy is indicated in recurring tonsillitis or rheumatic fever. Others have given figures to show the desirability of the operation. Successes have been sufficient to convince me that by it we have a means of stopping attacks of rheumatic fever (tonsillitis may be considered a part of the symptom complex of rheumatic fever) and thus preventing heart damage. No halfway measures will do, but only complete removal of the tonsils. Look with suspicion on the small buried tonsil. Chorea (St. Vitus' Dance) is one of the symptoms of acute rheumatism and should be so treated. The teeth should be thoroughly examined by inspection and X-ray. Doubtful ones should be treated and those beyond repair extracted.

Other areas of possible infection are the lungs, gastro-intestinal tract and any focus of chronic suppuration.

Rheumatic fever would be relatively unimportant were it not for its effect upon the heart. Warping and shrinking of the mitral valve so often results in children, producing that crippling lesion of the heart known as mitral stenosis. The sad picture of invalidism is familiar to all physicians. With serious attacks of acute rheumatism, few hearts escape. Since it is in childhood that the seeds of heart disease are so often sown, is it not our duty to search for foci of infection before they have had an opportunity of damaging the heart? President Lowell recently said that the success of a lion tamer is in knowing what the lion is going to do before he does it.

Scarlet fever and other contagious diseases must be carefully guarded against. No sane parent today would think of exposing other children in the family to a contagious disease on the principle of "eventually, why not now".

SYPHILIS OF THE HEART.

While syphilis may cause fatal heart disease during the secondary stage, it is usually insidious in its attack upon the heart and aorta. Ten to twenty years after the primary lesion, the syphilitic heart shows its first sign of attack, incapacitates the victim and closes a life which should have seen twenty to thirty years more of health and usefulness.

The diagnosis of primary syphilis should be made at the earliest possible moment by use of the dark-field illumination and the Wassermann test. Fordyce says, "It cannot be emphasized too frequently nor too emphatically that the fate of the syphilitic individual depends largely upon the early diagnosis of his infection and the intensity with which his treatment is carried out in the first six months. It is in the accomplishment of this purpose that the modern aids to diagnosis have rendered such invaluable service." Fordyce adds that even with this knowledge mistakes are made and patients given an assurance wholly unfounded, the error not being discovered until it is too late. Knowing then that the Spirocheta pallida is the cause of a large number of cases of aortitis, it is our duty to search the secretion of all venereal sores. With reasonable training the dark-field illumination is easy of application.

The Wassermann test should be made in every doubtful case of heart disease and in every adult case with any venereal history whatsoever. State and city boards of health offer free laboratory facilities for the testing of blood. Patients should be warned of the dangers of going untreated and after a thorough course of treatment should be made to understand the importance of repeating the treatment at regular intervals.

Aortitis and aortic regurgitation are the common syphilitic cardiac lesions. While anti-syphilitic treatment is often given after the cardiac condition has been discovered, I have rarely seen it do any good.

Aneurysm of the aorta is almost always due to syphilis. Salvarsan should be used with great caution in the presence of this lesion.

IRREGULARITIES OF HEART ACTION.

Today no intelligent interpretation of cardiac conditions can be made without a knowledge of the arrhythmias. Sinus arrhythmia is a normal irregularity occurring in children and persisting often until the age of puberty. It is noticed whenever the child breathes deeply or cries. All other arrhythmias such as premature contractions (extra systoles), paroxysmal tachycardia, heart block, auricular fibrillation, auricular flutter and alternation of the pulse have some pathological significance and should be studied with other objective symptoms.

HISTORY AND OBSERVATION.

A very complete history should be taken in every case. Only in this way can causes be determined and the importance of symptoms interpreted. Observation of the patient at rest and at work also helps greatly. The use of these two factors will aid the physician in determining the relative importance of slight physical signs and the significance of doubtful murmurs. A diagnosis cannot be made on a murmur alone, but only in the presence of other physical findings.

THE PREVALENCE OF HEART DISEASE.

Heart disease has become the greatest cause of death in the United States. Tuberculosis has given its place in the mortality lists to heart disease largely because so much has been done to awaken interest in the former while comparatively little information has been given to the public about the latter. In Massachusetts the deaths per 100,000 of the population are as follows:

	1912.	1921.
Heart disease	6,860	7,316
Pneumonia	5,965	4,200
Tuberculosis	5,067	3,867

These facts show at a glance the increase in heart disease in the last decade. Dr. Dublin, statistician of the Metropolitan Life Insurance Company, has been quoted by many writers giving mortality rates and recently quoted by Dr. Halsey of New York, who says that "if an analysis of the deaths for 1920 is made one finds that 621, or 0.5 per cent of all deaths from heart failure occurred in the first year; 1,094, or 0.8812 per cent in the first five years; 2,015, or 1.622 per cent in the first ten years. In the age period from 10 to 59, 38,318, or 30.86 per cent of all deaths, occurred and 83,660, or 67.39 per cent of deaths, after 60 years. After 40 years, 109,759, or 88.4 per cent of all deaths from heart disease, occurred. Dr. Dublin has said that one must not permit the relatively high death rate of later life to obscure the importance of death from heart disease in childhood, for expectancy of life at birth is 55.08 years, while the expectation at 60 is only fifteen years. The same author has thus stated the importance of heart disease before 1920 in terms of adult disease: under 25 years of age, organic heart disease causes as many deaths as typhoid fever. Between 25 and 34 years of age, organic heart disease causes as many deaths as lobar pneumonia. Between 35 and 44 years of age, organic heart disease causes more deaths than chronic interstitial nephritis. After 45 years of age, organic heart disease shows a higher death rate than any other cause."

"HAVE A HEALTH EXAMINATION ON YOUR BIRTHDAY."

By Merrill E. Champion, M.D., C.P.H., Director, Division of Hygiene, Massachusetts Department of Public Health.

"HAVE a health examination on your birthday" is a slogan you will hear everywhere this year; it is the watchword of the National Health Council. This article is a discussion of the meaning of the slogan to the man in the street and his family.

In order to make this meaning clear we must be able to answer certain questions:

1. What is a Health examination?
2. What advantages may we expect to come from having one?
3. How does one go about getting one?

What is a Health Examination?

A health examination implies a reasonably thorough overhauling by a competent physician to determine if the person who is being examined and who is apparently in ordinary health is really normal. This cannot be accomplished by merely dropping into the family physician's office and having him ask a few questions. The dentist does not merely ask one question about the teeth: he examines the teeth and bases his advice on what he finds. So does the oculist. Why expect the physician to do otherwise?

This health examination, then, if given by the family physician, would include the taking of a careful history of past illness and state of health as the patient himself knows it. Then there would come tests of sight and hearing, nose and throat, bones and joints, glands, heart and lungs, and the nervous system. The taking of the blood pressure and the simple urinary tests would be included. Such an examination would take not over an hour. Certain special examinations might also seem to be indicated; such as blood tests, further urinary tests and so forth.

What Advantages may we expect from having One?

To many, this sort of examination seems like a formidable undertaking, yet there is really nothing forbidding about it. The insurance companies feel that they must make this sort of an examination of those wishing to be insured, since to neglect it is to encourage financial disaster for the company. They further feel it desirable to offer more or less complete periodic examinations to those insured with them since by so doing they can help keep these persons alive a longer time to pay the company premiums. If this is good business for the insurance company why is it not good business for the man with a family dependent upon him or indeed for the single man or woman who wants to live efficiently and happily.

Figures are not wanting to show how great a problem there is facing the country because of preventable illness. Roosevelt's National Conservation Commission in 1909 came to the conclusion that there were about three million persons seriously ill in the country at all times, and that between two-fifths and one-half of this illness could be prevented. Furthermore we know that one disease, cancer, is responsible for one out of every 8 deaths of persons over forty years of age. We are convinced that cancer can best be handled as a problem by encouraging frequent physical examinations and prompt attention to any abnormalities thus discovered.

Figures, again, are not wanting to show the advantages of regular examinations in cutting down the period of disability from preventable diseases. The loss of 5% of city employees' time in New York was reduced to 1½% by the use of periodic physical examinations together with subsequent attention to what was thus found. Haven Emerson cites the results of the examination of 958 persons in New York city. Of this number only 2½% were found to be in good health; more than 72% needed definite medical treatment; about 24% needed only hygienic advice.

It should be emphasized, however, that there is another side to the periodic health examination. It may result in reassurance that there is nothing wrong as well as in discovery of defects needing correction. Many individuals suffer from an ever present fear that something is physically amiss with them when a careful examination would prove the contrary. There is no question but that such an assurance makes for positive health.

How are we to go about getting a Health Examination?

The only feasible way for the majority of persons to get a periodic examination is to go to the family physician for it. Moreover there is no better person to whom to go for any medical advice. The only difficulty is that so few persons go to the general practitioner of medicine for this sort of advice that he has rather got into the habit of thinking mostly in terms of treatment of disease. He can, however, easily become a "health advisor" if his clientele will only give him a chance.

In the cities, we occasionally find clinics where a careful looking over may be had for a very moderate fee. Such clinics usually have several specialists in attendance with one physician to sum up the results of the examination and to interpret them to the patient. This cooperative effort carried on under one roof at certain definite hours reduces the expense to all and makes the services of specialists available at a sum within the reach of all. In the very nature of things however, this service must be limited in extent.

It is interesting to note that the accomplishment of this effort for periodic health examinations implies individual interest in health rather than community interest. It is something which the individual has to initiate for himself and his family. This is entirely wholesome. It would be a serious misfortune if this sense of family responsibility were to be impaired or lost. People should realize that the promotion of normal health is worth planning for and paying for.

May we, then, sum up our conclusions thus:

1. A "health examination" is a careful overhauling of the individual while he is still apparently in good health.
2. We may expect from it to prevent physical defects; to pave the way for the correction of those already present; and to confirm the healthy individual in the pursuit of "positive health."
3. Periodic examinations, taking everything into consideration, will in the majority of cases mean consulting the family physician.

PRESENT STATUS OF PUBLIC HEALTH NURSING IN MASSACHUSETTS.

By Madeleine Wayne, R.N., Massachusetts Department of Public Health.

THE period of unreasoning devotion to certain convenient standards which winnowed out the malnourished by application of yard stick and scales, is evidently passing. One experiment will not make a law, nor can one table serve as criterion. So in trying to make observations as to the physical and spiritual development of this last child of the Profession, our Public Health Nursing, we cannot lay too much stress upon the figures showing its evident rapid growth. It should be possible, however, to combine statistics showing increase in numbers and distribution as to locality and type of service with consideration of more subjective conditions based on experiences and comparison of opinions. The purpose of this article is to suggest ways by which the towns and cities of the State can judge their own progesss in making health common to all.

DEFINITION OF TERM.

Since it is agreed by all authorities that the burden of the Public Health Education program rests mainly on the nurse who enters the homes, it is of interest to all concerned to know whether or not we are making it possible for all who desire and need such guidance to have access to one of these teachers of personal hygiene. The definition of the 1920 Committee for the study of Nursing Education furnishes one sort of measure in finding out the quality of professional service a locality is offering itself. "The Public Health Nurse is any graduate nurse who serves the health of the community with an eye to the social as well as the medical aspects of her function, by giving bedside care, by teaching and demonstration, by guarding against the spread of disease, unsanitary practices, etc."

There are over a hundred nurses in the State who are restricted to bedside care alone; many of these succeed in so using the opportunities presented them for effective teaching, that their demonstration of relief of discomfort and carrying out of orders is only a feature of their bigger task of changing for the better the health habits of the home. Similarly there are thirty or forty Child Hygiene "specializers" who interest themselves actively in the hygiene of the family and the community as well as their own particular phase of preventive and constructive teaching.

NUMERICAL GROWTH IN FOUR-YEAR PERIOD.

Considering then, first of all, the growth in numbers of public health nursing in the State, we must try to start with a common ground for comparison. A table compiled in 1919 gives a total of 591 full-time nurses including Tuberculosis, Prenatal, School, Bedside, Industrial and Metropolitan, with 565 part-time nurses. We have at the present time approximately 1,162 full-time nurses and about 168 part-time. An analysis of this total admits of the following general classifications:

	1923.	1919.
I. School:		
1. Full-time	218	115
2. School combined with other local nursing	101	–
	319	115
(Localities employing school nurse part-time, 112.)		
II. Industrial	245+	184
III. Generalized	240	–
IV. Bedside	125	124
V. Instructive only	192	168
VI. Combined	41	–
	1,162+	591

(For purposes of convenience nurses are not listed separately as Prenatal, Child Hygiene, etc., since in many, "generalized" includes these as well as bedside. "Instructive" is a term covering such educational work as communicable disease control, tuberculosis, child hygiene, etc.)

There are also at present about 166 part-time employments, which amount to approximately 40 additional public health workers, shared by either two, three and sometimes four towns or a county, as in tuberculosis and school work.

NURSING SERVICE BY DISTRICTS.

A table showing the number of towns and cities per District as compared with a similar study in 1919 is of interest mainly to those who are familiar with the State's administrative divisions under seven Health Officers.

The redivision of Districts in 1920 is responsible for the disappearance of figures for number 8. The addition of towns of 8 to the others makes so much difference in the analysis that it is not possible to draw close comparisons between the two periods. The table will serve merely as an additional means of noting distribution and numerical growth.

DISTRICT.	TOTAL TOWNS AND CITIES.		WITH NURSING SERVICE.		NO NURSING SERVICE.		PER CENT COVERED BY NURSING SERVICE.		PER CENT NOT COVERED BY NURSING SERVICE.	
	1919.	1922–23.	1919.	1922–23.	1919.	1922–23.	1919.	1922–23.	1919.	1922–23.
1	52	52	19	49	33	3	37	94	63	6
2	49	56	32	53	17	3	65	94	35	6
3	40	40	26	36	14	4	65	90	35	10
4	35	42	19	39	16	3	54	93	46	7
5	37	61	21	54	16	7	57	88	43	12
6	40	47	17	43	23	4	42	92	58	8
7	47	57	15	47	32	10	32	82	68	18
8	54	–	16	–	38	–	30	–	70	–
	354	355	–	–	189	34	–	–	53	10

PERCENTAGE CLASSED AS COVERED.

This, in other terms, means that in 1919, 6.9% of the total population of the State and 53% of the communities were not reached by any nursing service. At present, .6% of the total population and 10% of the communities have as yet no access to a public health nurse of any sort. The particulars as to the type of service indicated by these figures will be discussed later.

IDEAL RATIO AS MEASURE OF PRESENT ADEQUACY.

It is not enough to make a generalization of this sort even considering the matter from a strictly numerical standpoint. In the first place when we state that 90% of our population is reached by public health nursing we are giving a decidedly wrong impression.

If we accept the standard set for us both by the National Child Welfare Conference and the 1920 Committee for Study of Nursing Education, an ideal recognized as reasonable by our health educators, we must consider one public health nurse to 1,500–2,000 population the necessary proportion for an ordinary community before that community is considered adequately covered. Obviously if we find a town of 7,000 employing one nurse, and a city of 39,000 employing three, it is unfair to assume that all the individuals who would profit by contact with a really Public and a really Health Nurse have access to one. (And we must remember that even yet we sometimes have to sell our wares to the public, which takes additional time.) However we are undoubtedly progressing. In 1919 there was an approximate ratio of 1 to 6,500; at present it stands at 1 to 3,300.

Again, there are in the State 44 towns and cities approximating the ideal ratio of 1 to 1,500–2,000, but the significant feature is that out of this 44, only 6 are places needing more than one nurse to meet the ratio; the remaining 38 are small towns of 2,000 or less. The large cities may well look out for their laurels. And there are many small communities that may well take heed of these facts and work out some scheme of combining with adjacent places. For out of the 34 towns lacking any sort of public health nursing there are:

18 under 500 population.
8 under 500 to 1,000.
7 under 1,000 to 3,000.
1 under 4,000.

In conjunction with the preceding facts it is interesting to note that according to the findings of the Maternity Commission of 1920, in localities under 2,500, the percentage of infant deaths due to natal and prenatal causes was 47.4% of the total Infant Mortality, in comparison with 40.6% in places of 10,000 and over.

ANALYSIS OF TOTAL FIGURE ACCORDING TO NATURE OF SERVICE AND POPULATION.

Over 110 localities have school nursing only, 12 of these having full-time workers.

68 have a population of 1,000 or under (including 7 with full-time).
35 “ “ “ 1,000 to 3,000 “ 2 “ “
6 “ “ “ 3,000 to 5,000 “ 2 “ “
1 has “ “ 7,000 (full-time).

While it is perfectly possible for a school nurse on part-time in a community of only 1 to 3,000 efficiently to follow-up the defects of the children under her care thus giving her an entrée for constructive health efforts in the homes, it is unjust to expect such a lone worker to supervise the health of the entire family or of her two or more towns. (There are many places that engage a worker to do both school and some other form of public health nursing; such cases are not included in the above figures.) It may be concluded, therefore, that there are many towns, out of our total of 320 listed as reached by a nurse, which are included as having some public health nursing service because they are conforming with the school nurse law.

QUANTITY PLUS QUALITY THE PRESENT ISSUE.

So much for the physical growth of our child. In its present adolescent stage the important consideration should of course be its mental and character development. What evidences have we of a rational and intelligent spirit in the organization and administration of what nursing service we have, and to what extent is there a wholesome sentiment in regard to the Public Health ideal, and enthusiasm over the splendid possibilities of this social institution?

MUNICIPAL DIRECTION.

This is not the place to state any opinion as to the advisability of a municipality employing nurses to give care to the sick as well as offering instructional service to all. Nevertheless, the average local opinion seems to have been in favor of leaving bedside care to private supervision, for we have record of only 38 cases where care of the sick is included in the work of a nurse employed solely by the municipality. Out of this 38, 23 have combined school nursing with bedside or "general" public health nursing (which includes bedside).[1] There are several instances of a town appropriating a certain amount for nursing service, which is supplemented by the Visiting Nursing Association or other unofficial group, so that there is a state of "public and private ownership," with the nurse responsible to each.

In regard to this practice it sometimes happens that the Board of Health or Selectmen request no report to them and exercise no supervision of the nurse's activities, so that the arrangement is in reality a financial one rather than a well-considered policy. Such official contribution to a nurse's salary ought to mean that there is a return of a fair proportion of her time spent in work definitely social, free to all, such as instructive health teaching is, whether that be Child Hygiene, prevention of disease or other form. And it is manifestly a failure on the part of the nurse when she has not made every effort to so develop a feeling of community responsibility for health that each individual is proud of having a small share in a preventive program. However, it has more often happened that a nurse has allowed herself to be the local Atlas, and does not realize that she is unfair in bearing the burden on her own shoulders without even meeting her board regularly to discuss matters that should be of common interest.

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[1] The Board of Health nurse who gives bedside care to the sick is sometimes placed in an embarrassing situation because a fee is expected for nursing care, thus causing the taxpayer to buy what is legitimately already his.

EXPERIMENTS IN COMBINING FORMS OF NURSING.

As may be seen by the first table, there are about 100 nurses combining school nursing with some other kind of local visiting nursing. This seems to have worked out very satisfactorily, provided the ratio of worker to population has not exceeded a reasonable maximum. In cases where one nurse is expected to carry the school "follow-up" in the homes with a Bedside Care service, in a population group of 4,000 and over, one can readily understand that at times the urgency of cases of illness results in a reluctant neglect of work equally important but less imperative. Nurses who are continually in contact with the local communities throughout the State, have found many ambitious public health nurses who perceive the need for carefully planned home visiting for urging correction of school children's physical defects and other health teaching, but whose time outside the school-house is most of the year largely absorbed by the demands made upon her for attending the sick.

PUBLIC AND PRIVATE DIRECTION COMBINED.

There are a large number of towns in which the School Committee pays a certain determined part of a nurse's salary expecting in return a fairly definite portion of her time to school nursing, frequent consultation with the Committee and a full report week by week. The rest of her salary is paid by a Visiting Nurse Ass'n, to whom she reports on all save school work, and with whom she meets regularly for consultation. This sort of plan when conscientiously followed has made for coordination and efficiency. On the other hand there are many places where the School Committee or the Board of Health and the Visiting Nursing Association not only seem merely unconscious of each other's existence, but are lacking in sympathy with each other's efforts. In such a case it is scarcely feasible for one person to serve two masters, for she will surely be tempted to "hold fast to the one and despise the other."

The following summary indicates the respective numbers employed officially and otherwise.

	By Municipality.	By Lay Organization.	By Combination of Public and Private.
Full-time	396	728	38
Part-time	63	89	14

A logical result of the division of the health work of a community into two fairly distinct elements, the preventive-instructive and the curative-instructive, is a checking of the development of an all-round public health nurse capable of directing the health habits of a certain unit of individuals and of relating that group to all the health activities of the larger circles of city, county, state, country. Whether this same aim can be better accomplished by the co-working of nurses with special functions, is a question to be settled locally by experiment.

So much for a mere suggestion as to the variety of ways the problems of organization are being handled. A second indication of reasonableness on the part of a town having a public health nursing service is the provision for efficiency in the work itself.

THREE MEASURES OF EFFICIENT MANAGEMENT.

The wisest town is the one which protects the nurse from exploitation by the people and the people from exploitation by the nurse with a well-considered and publicly announced policy. There are, unfortunately, very few organizations employing nurses who are businesslike in their methods, and the understanding between this public servant and the group under whose name she works is indefinite and usually unwritten. There is an ever-increasing realization on the part of such employing agencies that the time of the nurse should be carefully accounted for, and also that in turn she should be protected from unreasonable demands upon her in the hours she is not on duty. It is a very unprogressive mind that thinks a woman can frequently spend more than eight hours in an intensive, self-giving day's work, and still have unflagging zeal and enthusiasm so vital to any sort of teaching effort. Yet we know of a nurse, who after a busy day of caring for the sick and instructing the semi-well, was called at six o'clock to put a well baby to bed when the mother had gone out. (More incredible still the Board was indignant because she courteously refused to go.) And countless times tired nurses have been called several miles in late afternoon or evening to see a child who had had a stomach ache all day, to hear, "Do you think we'd better call a doctor or wait and see how she is in the morning?"

Neither can the average nurse attend night emergency cases to the extent of two in a week and do justice to any real instructive work. There are many good public health nurses who have been seriously overtaxed when it might have been possible for an arrangement to be made for their relief from night work, as does one town which pays a resident married nurse to attend to all night calls. This, of course, would scarcely be necessary if there were only 1,500 to one nurse, for the absolutely unavoidable night duty in such a unit would not be onerous.

Then there is the matter of transportation. In days when even a cook requests garage room in her want ad. it is hard to excuse a community that allows time and energy to be wasted when it could afford to furnish a car for the use of its nurse or nurses. The larger cities and towns are not so much concerned in this matter. But there is the example of a moderately prosperous town of 23 square miles, population 5,500, whose one nurse, a school nurse, has to take the barge to get to the schools, and must spend between one and two hours on the trolley to get from one part of the town to the other. How much of her time is being utilized? Here again there should be a written agreement as to the use of the car for other purposes than reaching the homes, to prevent misunderstandings and unpleasant criticisms. The number of towns supplying Fords is fortunately increasing rapidly. Most of the ambitious communities have recognized the need, but there are still some towns that have eyes and see not, ears and hear not.

A third measure of efficiency is the use of an adequate record system. The importance of this element of a good public health nursing service is being emphasized on every hand. Only recently have the nurses realized that much of their effort is lost from a social point of view if there is no way of keeping a history of the health work of a community. Especially is the lack of records felt by a nurse entering upon her work in a town, where her predecessor carried all medical and social histories in her head — and naturally walked off with this compendium of information when she moved on to new fields. "We can't tell you how many pre-school children were visited any year prior to this." Or else the total figure of "visits to children" is pointed to with some pride, but blank ignorance meets any request for information as to any defects detected and corrected among that number, or any results of those visits. It is a most hopeful indication of the present appreciation of this poor business management that nurses, and even secretaries of Nursing Associations, are constantly inquiring as to the minimum effectual record system. There is interest, and there have been a few developments in the last two years. Nurses are conquering their aversion to spending time on clerical work in very gradually increasing numbers and are admitting the necessity of records.

Appreciation of "The New Public Health."

Finally it is of interest to speculate as to the growth of the Public Health Idea. There are no figures to quote, but observation and contact with communities by a representative group of professional women should be productive of some rough estimate of the spirit in the State as a whole. In the first place it is doubtless true there are in this State a few nurses who have not yet earned the significant title of Public Health Nurse, because they themselves admit that they are earning a living in a way they found easier than private duty nursing. Having conceded this, it is fair to claim that the majority of the nurses are really interested in the health of the community they serve, and many are rendering invaluable service which will eventually bear fruit in a well instructed group of people who have guarded against disease and insured themselves for health and efficiency. A great many nurses in the State do not possess any special training; they have their basic hospital experience and have learned "on the job." Of these there are some who would eagerly take a course in Public Health Nursing if they could afford it, and who attend all conferences and institutes which are designed to assist them to understand the possibilities of the work and set certain standards of procedure. Then there are others (may they soon be negligible in number) who do not realize that their little round of reparative or corrective work is only part of a big program in which they should share; they have no appreciation of what can be done in the way of health teaching because they have never made comparisons of their work with that of other nurses in similar situations.

As for official and lay groups, it is usually true that their attitude toward Public Health Nursing is largely determined by the type of nurse they have employed. In some towns the lay group is even more appreciative of the ideal of education for the common health than the Board supposedly committed to protecting the health of the people. And again the Board of Health in a few instances has more real vision than the nurse herself. Little by little the leaven is working, and a few more years will undoubtedly find a public really concerted in its effort to secure health for all.

Immediate Problems.

Our chief needs just now seem to be, for a continuation and development of our various methods of increasing the working knowledge and the efficiency of our nurses, through study courses conveniently arranged, through publicity of educational leaflets, books, etc., and stimulation of communities that can afford more nurses to permit expansion of instructive efforts. Secondly, some acceptable method must be devised to assist those communities that are really handicapped by lack of available funds, but who would appreciate nursing service. Thus, by increasing the supply and by the self-improvement of those already in the field we should soon have a force of public health nurses that would make Massachusetts justly proud of her record.

This study of the numerical adequacy of our Public Health Nursing Service and these observations as to its quality should assist in making definite the position of any particular community or nurse. Through comparison with a reasonable standard and with the achievements of localities of similar nature, a town or city should check itself on the following points:

1. Is this community offering to each member opportunity to receive from a Public Health Nurse the advice and help needed to help protect his well being?
2. Is this community awake to the Public Health ideal?
3. Are we receiving the services of the best nurse we can afford and are we protecting her from needless waste of energy and enthusiasm?
4. Are we businesslike in our administration of our nursing service, and giving a square deal to the taxpayer, the average citizen, the nurse, and above all, the "child in our midst"?

Note. — The figures used in this paper are necessarily approximations because of the continual change occurring in the nursing force in the State; they have been checked up from various sources, however, and are reasonably accurate except for the number of industrial nurses. The inferences as to the character of the nursing service are impersonal, being the result of observations of a variety of field workers who have received first-hand impressions of local situations.

REVIEW OF MATERNAL MORTALITY, MASSACHUSETTS, 1922.

By Angeline D. Hamblen, A.B., Statistician, Massachusetts Department of Public Health.

DURING the year 1922 there were 672 deaths of pregnant women in Massachusetts. There were 87,636 live births during the same year and the cost to the state was one mother for every 130 live born babies.

The maternal deaths were fairly evenly distributed throughout the state. The rate for the entire state was 7.7 per 1,000 live births. The rates for the separate counties are given in Table I.

Table I. — *Maternal Death Rates in Massachusetts by Counties.*

County.	Deaths of Pregnant Women per 1,000 Live Births.
Barnstable	7.3
Berkshire	6.8
Bristol	5.1
Dukes	–
Essex	6.6
Franklin	10.7
Hampden	8.4
Hampshire	7.7
Middlesex	8.0
Nantucket	–
Norfolk	5.2
Plymouth	7.6
Suffolk	9.6
Worcester	7.0

It will be noted that there were no maternal deaths in Dukes County nor in Nantucket County. In Dukes County there were 92 births and in Nantucket County there were 47 births. The maternal death rate is somewhat affected by nonresident deaths, but it should be remembered that births as well as deaths are charged to the place where the birth or death occurred.

Table II. — *Maternal Deaths by Ages.*

Age Groups.	Number dying in the Age Groups.
Under 20	32
20–24	120
25–29	146
30–34	174
35–39	130
40+	70
Total	672

400 or 59% of the mothers were born in the United States. 122 or 18% were born in Canada, England, Scotland or Ireland.

TABLE III. — *Birthplace of Mother.*

BIRTHPLACE.	Number of Mothers.
United States	400
Canada	60
Italy	48
Ireland	48
Russia	18
Poland	17
Portugal	16
England	9
Greece	8
Lithuania	6
Sweden	6
Finland	6
Scotland	5
Syria	4
South America	3
British West Indies	3
Germany	2
Austria	2
Turkey	2
Armenia	1
Albania	1
Belgium	1
Denmark	1
China	1
France	1
Holland	1
Mexico	1
Porto Rico	1
Total	672

There was an increase in the maternal death rate in the winter months. In February particularly, there was an increase in the number of maternal deaths and a decrease in the number of live births. In February pneumonia or influenza was the main or a contributory cause of death in 28 or 30% of the cases.

TABLE IV. — *Monthly Distribution of Maternal Deaths.*

MONTH.	Number of Maternal Deaths.	Number of Live Births.	Death Rate per 1,000 Live Births.
January	57	7,558	7.5
February	91	7,074	12.9
March	76	7,662	9.9
April	61	6,936	8.8
May	64	7,228	8.9
June	54	7,147	7.6
July	44	7,582	5.8
August	48	7,888	6.1
September	47	7,420	6.3
October	43	7,372	5.8
November	40	6,901	5.8
December	47	6,868	6.8
Total	672	87,636	7.7

There were 27 cases of ruptured ectopic gestation and 132 cases of miscarriage or abortion. Septicemia was the most frequent cause of maternal death. 169 or 25% of all maternal deaths were due to this cause. Septicemia was also given as a secondary cause of death in 23 instances, making a total of 192 deaths to which septicemia contributed. Toxemia, including eclampsia and uremia, was the cause of death in 139 or 21% of the cases. They were given as secondary causes of death in 14 cases. Hemorrhage, embolism, or shock was the cause of death in 129 or 19% of the cases. They were given as secondary causes of death in 36 cases.

TABLE V. — *Causes of Maternal Deaths.*

Septicemia	169
Toxemia (including eclampsia and uremia)	139
Hemorrhage	63
Embolism	42
Organic Heart Disease	41
Lobar Pneumonia	33
Shock	24
Ruptured ectopic pregnancy	17
Nephritis	15
Influenza	14
Tuberculosis pulmonary	13
Broncho pneumonia	12
Pneumonia	11
Ruptured uterus	8
Endocarditis	8
Salpingitis	8
Abortion	8
Dystocia	5
Appendicitis	4
Dilatation of stomach	4
Erysipelas	3
Scarlet fever	3
Acute yellow atrophy of liver	3
Anemia	2
Pelvic abscess	2
Intestinal obstruction	2
Alcoholism	1
Apoplectic shock	1
Diphtheria	1
Fibroid of uterus	1
Hyperthyroidism	1
Injuries received in a car accident	1
Exhaustion	1
Gastric ulcer	1
Acute leukemia	1
Ruptured lung	1
Gastritis	1
Gangrene of leg	1
Multiple burns	1
Diabetes	1
Syphilis	1
Syncope	1
Kreotoxin poison	1
General paralysis of the insane	1
Found dead	1
Total	672

The figures presented above are taken from the study of maternal and infant deaths which is being conducted by the Massachusetts Department of Public Health. They are not comparable with the figures on "maternal deaths" presented in the Registration report. In this study the deaths of all pregnant women were considered while in the Registration report only those deaths from diseases caused by pregnancy and confinement were included in the figures for "maternal deaths". Also the doctors who made the personal studies of the separate cases for the Massachusetts Department of Public Health, after talking with the doctors who made the diagnoses as found on the death certificates, quite frequently made additions to or changes in the original diagnoses.

THE COMMONHEALTH.

Quarterly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

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Frances Klein, S.B., Associate Editor.
Room 546, State House, Boston, Mass.

The Prevention of Heart Disease. — Attention is called to Dr. Robey's timely article in this issue of The Commonhealth on the prevention of Heart Disease. We have long heard of the prevention of Communicable Disease, though much yet remains to be done in this direction. We can hardly be said to be successful when we have the death rate which exists from such a preventable disease as Diphtheria. None the less people are rapidly being educated to the importance of attention to Communicable Disease.

Less well known by far are the prevention measures which may be taken against some of the non-communicable diseases. Cancer, Diabetes, Heart Disease — to mention only three — must receive an increasing amount of attention in the future. While it is not the function of a health department to treat chronic disease, it is most decidedly its function to prevent disease of any kind. The widespread incidence of heart disease is a challenge to our methods of health education.

The Periodic Examination. — The task of the family physician is rapidly changing. He still has to paint sore throats, and diagnose the spots of measles, and bandage up broken bones. He still has to cure all sorts of diseases, from head to foot, inside and out. But in addition, the family physician of today is concerned with preventing sickness and keeping people well. This principle is sound both from the economic and the humane viewpoint. It is the principle of cleaning a fur coat and putting away in moth-balls instead of neglecting it and having to patch it up after the damage is done; or polishing one's shoes every morning to keep them in good condition, instead of waiting until they are shabby before applying dressing. Or to approach the man himself, it is the principle of eating vegetables every day to get iron and vitamines, instead of waiting until the individual has anemia and then prescribing rest cure and pills; or having the teeth cleaned and the tiny cavities filled regularly, instead of waiting until they are so far gone that it necessitates extraction.

The national campaign now on is urging regular annual physical examination. Such an examination would mean the prevention of many ills which can be discovered and cured in the early stages. The family physician can be of great service to both children and adults, if this service is requested.

Objects of Antenatal Care. — A most interesting article by Drs. Adair and Maland of Minneapolis appears in the Journal A. M. A. for Sept. 22, 1923. This sums up the objects of antenatal care as follows:

> We believe we have brought out some of the things to be accomplished by proper prenatal care and supervision:
>
> 1. The reduction of sterility by securing proper care for mothers, and the consequent reduction of infection.
> 2. The lessening of the number of abortions.

3. The diminution in the number of premature deliveries.
4. The reduction of the number of stillbirths.
5. The saving of infant life during the neonatal period.
6. The saving of the health of the mothers.
7. The virtual elimination of maternal deaths from toxemia and infection by proper instruction, supervision, preparation and treatment of mothers during the periods of gestation, parturition and the puerperium.

The Examination Clinics for children carried on under the direction of the Division of Tuberculosis are in full swing again this fall. The Division of Hygiene is again cooperating by having a consultant in nutrition present at the clinics to talk to the mothers and children.

Preparations are being made for the physical examination of the children who registered for the Boston Health Show but who could not be examined there. The Boston Health Department is handling those who live in Boston, while the State Department of Public Health is to take care of those belonging outside Boston.

A new feature in the School Hygiene Conferences as conducted this year throughout the State has been the meeting for school physicians. Furthermore there has developed a demand for more frequent regional meetings.

A course for School Nurses will be given at the Normal School at Hyannis next summer under the auspices of the Division of Hygiene of the State Department of Public Health.

The Child Hygiene nurses of the Division of Hygiene have surveyed 239 towns to date.

The Editors write with interest that the Brockton Visiting Nurse Association is represented by four of its staff nurses in the School for Public Health Nursing this term. This is an excellent method for a city to add to the value of its nursing service.

Plans are now under way for the New England Health Institute in the Spring. We are hoping for a registration from the New England States of at least one thousand. The date will probably be the week of May fifth. Watch for further announcements.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of July, August and September, 1923, samples were collected in 118 cities and towns.

There were 1,367 samples of milk examined, of which 680 were below standard, 80 samples had the cream removed, and 71 samples contained added water.

There were 136 samples of food examined, of which 42 were adulterated. These consisted of 33 samples of butter which were low in fat; 3 samples of condensed milk which were decomposed; 1 sample of ice cream which was deficient in butter fat; 2 samples of sausage, 1 of which was colored, and 1 sample was not properly labeled; 2 samples of olive oil which contained cottonseed oil; and 1 sample of orange marmalade which contained too much glucose, and not enough fruit.

There were 15 samples of drugs examined, of which 2 were adulterated. These consisted of magnesium citrate solution which contained magnesium sulphate.

The police departments submitted 1,770 samples of liquor for examination, 1,560 of which were above 2.75% in alcohol. The police departments also submitted 23 samples of poisons for examination, 12 of which were morphine, 2 cocaine, 1 opium, 1 codeine, 2 heroin, 2 morphine derivative, and 3 samples examined for poison with negative results.

There were 15 hearings held pertaining to violations of the Food and Drug laws.

Thirty-six samples of coal were examined under the coal law, 23 samples conforming to the law, and 13 samples contained an unreasonable amount of impurities.

There were 27 convictions for violations of the law, $765.00 in fines being imposed.

Louis Farrah of Lawrence; Louis S. Hardy of Waltham; Frank Frodyma of West Springfield; John L. Higgins of Wellfleet; John Kuken of Amesbury, on 2 cases; Joseph A. Nunes of Somerset; Perley P. Currier of Haverhill, on 2 cases; Joseph A. Coutaubo of Westport; Thomas W. Sclosck of Southbridge; John B. Dyer and Anton Marshall of Truro; Edgar May of Canton; Joseph Hamel of Lanesborough; and Mary Kupiec of Dudley, were all convicted for violations of the milk laws.

Colonial Provision Company, Inc., and Max Garber, both of Boston, were convicted for violations of the food laws. Colonial Provision Company, Inc. of Boston appealed their case.

Leo Elbaum, Empire Spice Company, Harry Gitlin, and Myer Goldberg, all of Boston, were all convicted for violations of the drug laws. Empire Spice Company, and Leo Elbaum, both of Boston, appealed their cases.

Harry Gladstone and Saul Shlager, both of Malden; Samuel Goldfine and Morris Pearlman, both of Pittsfield; and National Mattress Company of Boston, were all convicted for violations of the mattress laws.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers.

Milk which contained added water was produced as follows: 6 samples, by William F. Lakin of East Milton; 4 samples each, by John Kuken of Amesbury, and Watson L. Bennett, Jr., of State Line; 3 samples each, by Joseph Hamel of Lanesborough, and Oscar May of Canton; and 1 sample, by Joseph Toroski of Adams.

Milk which had the cream removed was produced as follows: 14 samples, by Fred A. Gould of Andover; 1 sample each, by Frank Cominsky of Pittsfield; Anton Marshall and John B. Dyer of Truro; Watson L. Bennett, Jr., of State Line; and Essex County Cooperative Dairy Association of Salem.

One sample of ice cream which was deficient in butter fat was obtained from International Ice Cream Company of Pittsfield.

One sample of sausage which was improperly labeled was obtained from Holyoke City Market, Holyoke.

One sample of sausage which contained coloring matter was obtained from Colonial Provision Company of Boston.

One sample of orange marmalade which contained too much glucose and not enough fruit was obtained from Trimount Laboratories Inc. of Boston.

Butter which was low in fat was obtained as follows: 11 samples from Tait Brothers Company of Springfield; 4 samples from Beatrice Creamery Company of Springfield; 3 samples from Cudahy Packing Company of Lawrence; 2 samples from Cudahy Packing Company of Lowell; 1 sample each, from Turner Centre System, and Lawrence Market Company, both of Lawrence; Lewis Widlensky, and Springfield Butter Company, both of Springfield.

There were 6 confiscations, consisting of 845 pounds of decomposed beef, 350 pounds of decomposed beef livers, 480 pounds of dried out veal, 30 pounds of decomposed chickens, 200 pounds of decomposed oxtails, and 71 barrels of decomposed milk.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of June, 1923: 4,633,920 dozens of case eggs, 672,904 pounds of broken out eggs, 8,041,949 pounds of butter, 985,433 pounds of poultry, 4,202,668 pounds of fresh meat and fresh meat products, and 3,514,062 pounds of fresh food fish.

There was on hand July 1, 1923, 19,873,820 dozens of case eggs, 1,717,403 pounds of broken out eggs, 7,739,180 pounds of butter, 5,673,629 pounds of poultry, 19,273,815 pounds of fresh meat and fresh meat products, and 6,650,120 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of July, 1923: 1,683,750 dozens of case eggs, 519,443 pounds of broken out eggs, 8,009,586 pounds of butter, 818,647 pounds of poultry, 4,068,167 pounds of fresh meat and fresh meat products, and 4,378,965 pounds of fresh food fish.

There was on hand August 1, 1923, 20,065,590 dozens of case eggs, 2,062,253 pounds of broken out eggs, 14,236,999 pounds of butter, 4,670,880 pounds of poultry, 16,675,800 pounds of fresh meat and fresh meat products, and 9,956,577 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of August, 1923: 623,100 dozens of case eggs, 179,602 pounds of broken out eggs, 3,698,005 pounds of butter, 487,558 pounds of poultry, 3,615,339 pounds of fresh meat and fresh meat products, and 4,997,650 pounds of fresh food fish.

There was on hand September 1, 1923, 18,680,280 dozens of case eggs, 2,002,648 pounds of broken out eggs, 14,684,132 pounds of butter, 3,151,290 pounds of poultry, 14,116,048 pounds of fresh meat and fresh meat products, and 13,810,008 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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EUGENE R. KELLEY, M.D., Commissioner

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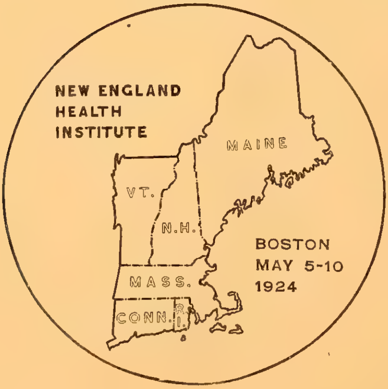

THE PHYSICIAN OF THE FUTURE.

By Eugene R. Kelley, M.D., State Commissioner of Public Health, Massachusetts.

I. Introductory.

LET it be admitted at the outset that the title of this paper is audacious. Prophecy is an occupation fraught with serious danger to the reputation of any one working regularly at it. My only extenuation is that a public health administrator must be constantly observing, weighing and passing judgment both upon definite developments and also upon tendencies as yet merely indicated in the field of medical progress. Such study is absolutely essential for wise, or even reasonably intelligent planning of future public health policies. A sanitarian is forced to take cognizance of certain broad currents in the channels of clinical medicine sometimes before these currents are perceptible to those actively engaged in medical practice. This constitutes my apology for bringing to your attention on this occasion certain fugitive thoughts as well as some carefully thought out convictions on the future developments of medicine, a subject inherently of perennial interest to all members of our profession.

II. The Training of the Physician of the Future.

First comes consideration of the tendencies of training in the medical schools.

Without going into any detailed corroborative evidence, it is probably fair to say that for the past twenty-five years medical schools have shaped their curricula more and more in the direction of emphasizing the specialties. More and more the attempt has been made to have the student master the principles of all of the ever multiplying specialties and to establish at least a bowing acquaintance with each new "instrument of precision" and each new laboratory procedure developed in connection with each such specialty.

This process has reached and gone beyond the saturation point. Both students and deans of medical schools are in open revolt against the present scheme of medical education. Obviously there must be a lengthening of the course to six or more years, or a complete change in the underlying philosophy and procedures in medical education is inevitable. One of the great schools of medicine has recently come out boldly with the statement that their policy for the immediate future will be a return to the Hippocratic ideal of training the student's native powers of observation, of weighing of the facts elicited, and endeavoring to develop his judgment as to whether it is necessary or advisable to seek the advice of the specialist, with no attempt to turn out embryonic specialists in every aspect of medicine. Moreover, the Dean of this particular school assures me that they will, above all else, endeavor to train their future students to keep more in the foreground the patient himself to an extent that has not been done of late years. And I feel that this is typical of the point of view of medical schools generally.

I believe we will witness in a sense a reversion to the ideals of a generation or two ago — less attempt to turn out encyclopedic authorities on all the nooks and corners of medicine's vast domain, more attempt to turn out sympathetic students of humanity.

III. The Recovery of the Lost Provinces of Medicine.

This seems to be one of the definite jobs of the coming era in medicine if medicine is to maintain its grip upon the respect, regard and affection of the world at large. I can best illustrate what I have reference to by the phrase "lost provinces of medicine" by repeating a little anecdote told me by the venerable emeritus professor of medicine at Harvard, Dr. Fred Shattuck. He said that many years ago

he was detained in Marseilles, France, for a considerable time by serious illness in his immediate family, and while there was thrown into intimate contact for the time being with a wonderful French physician of the so-called "old school". From consideration of the features of the particular case that brought them together they went on to an exchange of views as to the fundamental duties and obligations of the profession in general. Dr. Shattuck says that in one of these conversations his French colleague broke out suddenly with this remark, "Ah! Doctor, the province of the physician, what is it? The obligations of the physician to his fellows, what are they? To cure sometimes, to relieve often, to console always!" Dr. Shattuck said that abrupt penetrating remark has always remained a vivid memory and he has become increasingly convinced with the passage of the years that the fundamental mistake of the profession today has been its absorption in the pursuit of the first of these three fundamental duties as defined by the old French physician to the neglect or utter exclusion of the other two. I think that Dr. Shattuck is not merely right, as he nearly always is on a question of medical philosophy, but that his story actually goes right at the bottom of much that is now admittedly out of joint in the relation of the physician to the rest of the community, and that it indicates the line of campaign that medicine must wage to recover its "lost provinces".

In the field of cure it needs no argument to demonstrate how much we have improved on "the fathers". Diphtheria antitoxin, aseptic surgery, salvarsan, insulin and scores of other terms that come to your minds and are on your lips every day bear witness to this fact. But when we come to the other two fundamental obligations that the wise old French physician coupled with cure, and as of equal significance, "to relieve often, to console always", come, let us be honest about the matter for a few minutes, reflect and then answer candidly whether the rise of osteopathy and its imitators, and their growing hold upon our fellow citizens, or the rise of Christian Science and its imitators, and *their* growing vogue, really indicate increasing lack of intelligent discrimination on the part of our fellow citizens relative to the correct methods of approaching their morbidity problems so much as these conditions indicate a failure on the part of the profession to hold fast to the doctrine of "the fathers" that it is of as much importance and as equally mandatory upon the physician to utilize all methods of relief, functional stimulation, psychic comfort and suggestion that can possibly be brought to bear upon the problem of the individual patient as it is to attain a cure when that is possible. And, moreover, that when all these have reached their limit there still remains the high duty of consolation, of strengthening the spiritual resources of our patients even in the face of the inevitable, not in the sense of orthodox religious consolation but in striving to build up in the soul of every patient something of that marvelous spirit manifested by the late Franklin Lane as he was facing the supreme problem of every human being.

I predict that medicine of the future will come back and claim for its own the fields of alleviation and spiritual consolation just as the old family doctor of the past always did. But in his case he did this instinctively, unobtrusively, utilizing all the great potentialities for good in the way of palliative, psychic and spiritual measures that were at hand without dreaming of starting a new healing cult or a new religion in order to call dramatically to the world's attention the possibilities in such procedures.

IV. THE PHYSICIAN OF THE FUTURE A PRACTITIONER OF PREVENTIVE MEDICINE.

One other thing in reference to the medicine of the future that seems more certain to come to pass than any other probable or likely development is the shift of emphasis to preventive in contrast to curative principles not merely in public or community health matters, but in private practice as well. The function of the practitioner will largely become that of supervising well people. It will be the job of the physician in private practice to check up on the state of physique, dietary habits of his patient, and to detect and carry out the correction of acquired or congenital defects. He will do this not so much because he deliberately plans for it as because the tendency of the times insists upon a more anticipatory system of combating actual illness, or even threatened breakdown of physiological functioning.

In other words, I firmly believe that the public is slowly making up its mind along these lines and as public sentiment becomes more definitely crystallized that the practitioners of clinical medicine will be given only Hobson's choice in this regard. They will have to take on as an every day function the active practice of preventive medicine on a private fee basis or else this bugaboo of State Medicine will become a reality. I mean by State Medicine the active supervision and direction of general practitioners by government with at least a part of their compensation regulated, adjusted and fixed by the government in return for professional services rendered along preventive medicine lines. Personally, I look with apprehension upon any such possible development of medicine in this country but I am convinced that the immediate future will see one thing or the other, — either more intelligent consideration of the fundamentals of preventive medicine by physicians generally and the application of these principles to private practice, or a constantly increasing encroachment by government in the field of *private* practice as this term is now understood.

V. Clinical Medicine already entering the Preventive Medicine Phase.

To supplement the statement just made concerning the swing of private medical practice towards the field of preventive medicine, I wish to call to your attention certain features of clinical medicine of today that point out quite clearly the direction in which we are traveling. I will utilize for this purpose a portion of the conclusions arrived at by a Committee on Relations of Medical Men and Health Officials of the Conference of State and Provincial Health Authorities of North America, of which I chance to be one member and whose conclusions I am therefore at liberty to quote freely without laying myself open to the charge of plagiarism. As to what constitutes the field of medicine today, we found and reported the following. I leave it to each one of you to answer for yourselves how much more the preventive note will be sounded in the private practice of medicine of tomorrow.

"Medicine as it is practiced today by the rank and file of the medical profession concerns itself more especially with the diagnosis and treatment of diseases that have advanced to a stage where they incapacitate the afflicted and interfere with productive efficiency or the enjoyment of life. Most of these diseases occupying the time and thought of the medical profession have reached what Sir James MacKenzie classifies as the 'advanced stage' and many have approached the 'final stage'; few diseases, relatively speaking, are treated by the profession in the 'early stage', and fewer still in the 'predisposing stage'.

"Nevertheless, it is true that the medical profession today is giving more treatment for diseases that are in the early stage and to patients who are predisposed than ever before. There is a strong, irresistible, unceasing current in medicine to move from the obviously pathological toward the more physiological conditions of life. This tendency of medicine to find its patient before irreparable damage has been done and to treat disease in its more curable stages has been made possible (1) by a larger appreciation on the part of both physician and patient of the value of early treatment as contrasted with late treatment, this larger appreciation of early treatment having resulted from the greater emphasis that has been placed upon disease prevention as compared with the treatment of disease during the last thirty or forty years; and (2) by easier means for reaching the patient because of (*a*) improved communication, telephones and roads, (*b*) improved transportation, automobile and electric car lines, and (*c*) enlarged hospital facilities with segregation of the sick.

"In certain special fields of medicine this tendency of medical thought and practice to emigrate from the pathological into the physiological phases of vital conservation is well under way. Medical textbooks teach that pregnancy is a normal state of being, but medicine has taught for years that every pregnant woman is entitled to and should have medical care in order to anticipate, treat and prevent dangers which threaten the expectant mother and her child. Infancy is also a normal state of being, but a state of being of enfeebled vitality, and a condition of life where danger threatens even more than in a normal pregnancy. The pediatricians in the more enlightened centers are now giving most of their time and thought to the care not of pathological infancy but of physiological infancy. Medicine is now beginning to recognize and admit that adult life, especially adult life

after middle age, is sufficiently liable to dangers which may be anticipated and prevented to justify and require general periodic medical oversight. It is very clear, then, that the field of medicine is rapidly enlarging itself to include not only treatment of present disease but anticipatory treatment of disease liability. Anticipatory treatment has for its motive and purpose prevention; it is prevention.

"Prevention is much newer as a practice than as an ideal in medicine. Medical ideals, the larger objectives of the profession, have always been the prevention of disease. The pride of the profession, the respect in which the public holds it, the distinction which it has over the cults, is that through its discoveries and their application smallpox and typhus and yellow fever have been banished and diseases in general have been greatly reduced; the efficiency and happiness of life and longevity have been definitely and measurably advanced. The 'Principles of Medical Ethics', embodying a statement of principles and ideals of the organized medical profession of the United States, in chapter three, relating to 'The Duties of the Profession to the Public' specifically and urgently advised the members of the profession to take an active and advanced position in their communities, their states and their nation in proposing legislation for disease prevention, in supporting officers for the enforcement of such legislation, and in every possible way preventing disease in the interest of the public welfare.

"To summarize, the field of medicine, in both its practice and its claims, insists and rightly insists on including within its activities both the cure and the prevention of disease, and the unmistakable tendency in medicine is to increase its work in the prevention of disease as compared with its work in the treatment of disease."

THE COMMUNITY'S PART IN THE CONTROL OF COMMUNICABLE DISEASES DANGEROUS TO THE PUBLIC HEALTH.

By Frances B. Mayer, Social Worker, Sub-Division of Venereal Diseases, Massachusetts Department of Public Health.

IN presenting the need for further educational propaganda for the control of syphilis and gonorrhea, we must glance back through the years which have made these diseases so intense a public health question. Six brief years ago European armies were at war; appalling statistics visualized the part venereal disease was playing, the loss of men for fighting — a toll far greater than from the ordinary casualties of battle. In the following years examination of our own men showed a large proportion in need of treatment. That the majority of infection occurred before entrance into military service brought the staggering realization that community life played too large a part in fostering breeding places of infection. No longer could we shut our eyes and keep the knowledge of these devastating diseases "taboo".

Venereal Diseases made Reportable.

In December 1918 the Commissioner of Health of Massachusetts declared syphilis and gonorrhea to be communicable diseases dangerous to the Public Health and, as such, reportable to the State Department of Public Health. Machinery was then created placing every known medical facility within the reach of the physician, the hospital, and the community. No longer could treatment "under cover" or through so-called "self" cures flourish. To meet this need, the sub-division of Venereal Diseases was created, within the Division of Communicable Diseases. Clinics were established throughout the State in the following cities: Boston, Brockton, Fall River, Fitchburg, Haverhill, Holyoke, Lawrence, Lynn, Lowell, Salem, Springfield and Worcester; the State granted a subsidy of $1,000 to each of the clinics, thus making free treatment possible for any one unable to pay for the services of a private physician.

So new a venture in public health needed the most careful fostering, particularly because of the delicate underlying issue at stake and the intimate personal life of the patient under treatment. Therefore, it was deemed advisable to report only infectious cases, and these by number, rather than by name. However, should treatment be refused, and the condition of the patient be such that, in the opinion of the physician reporting, he was a menace to public health, provision was made that he should be reported to the State Department of Health by name and address. This information in turn was to be referred by the State Department of Health to the local board of health for any action this board might deem advisable in urging the person so reported to continue treatment. (Regulations governing the reporting of gonorrhea and syphilis promulgated under the authority of Section 9 of Chapter 75, R. L., as amended by Chapter 670 of the Acts of 1913, now Chapter 111, Section 7, G. L.)

In the ensuing years, 1919 to 1923, physicians and clinics have reported by number to the State Department of Health 56,481 cases of venereal disease: gonorrhea 39,762, syphilis 16,719.

Present Day Status.

Today, with the return of the community to civilian life, we find that, due to the intensive propaganda of the war years, our educational program has brought us at least ten years ahead of the ordinary growth of public opinion in the control of these communicable diseases, gonorrhea and syphilis, so dangerous to the public health, physically, mentally, and morally. Yet, in spite of this, is it not a startling fact that about 600 new infections are reported by number each month? This does not in any way take into account those patients under treatment and not infectious, therefore not reportable to the State Department of Public Health. From the standpoint of community life, an analysis of one month's group of reported cases may be illuminating. Of the two diseases, gonorrhea is the more prevalent; the majority of patients are single men, with infections occurring between 15 and 25 years of age, surely the most productive years in the life of the individual, from the standpoint of industry, of the home, and of the family.

The Commonwealth of Massachusetts is bearing the economic burden in the institutional care of persons incapacitated by the ravages of venereal diseases. The care of 100 men in the Boston State Hospital suffering from the effects of venereal diseases cost the State $39,000 a year.[1] This is but one of the sixteen state hospitals caring for patients suffering from mental diseases due to syphilis. That the community also bears this burden is shown in the 241 children under 17 years of age having less than 1/10 normal vision who were reported to the State Department of Education, Division for the Blind, in 1922. Of these children 13¾% are handicapped from venereal diseases, either syphilis or gonorrhea. In view of the fact that the estimated cost of education of the blind child is six times greater than that of the normal child, these figures are very significant.

The State approved clinics are again a cross-section view of the community, the following social difficulties being found in patients under treatment in any one of these eighteen clinics: — the infectious man or girl, adrift from family ties, living in lodgings and eating in restaurants; the unmarried pregnant girl, diseased, an alien in her family, and in need of medical as well as social care; the wage earner, mentally deranged, in need of institutional care, as well as financial aid for his dependent family; the diseased sex offender, plying an "under-cover" trade, a constant carrier of infection; the industrially handicapped child in need of special vocational training; and the innocently infected wife in need of sympathetic interpretation of her condition in its relation to her future life.

Placing the Responsibility.

In the light of this community responsibility can we any longer close our eyes and say, "this is none of my affair"?

Venereal disease control propaganda, by its very insistence, has become an old, a tiresome subject. War agencies, both public and private, created during an emergency to guard the youth of the community, have withdrawn their protection. Today we find a revolt against even the very conventions which heretofore have

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[1] Syphilis of the Innocent, by Harry C. Solomon and Maida Herman Solomon.

afforded a certain safeguard. Great strides in the past decade have been made in the medical control of these communicable diseases. Have we progressed as rapidly in our social control?

Clean thinking, and clean living on the part of each individual are the only effective means of control. No educational program against the spread of these diseases will be effective until each person in the community is willing to face the issue at stake and to make himself a part of the campaign being waged by the Mass. Department of Public Health in wiping out these diseases so dangerous to the life of the community.

A STUDY OF 100 SUDDEN DEATHS FOLLOWING PREGNANCY.

By Angeline D. Hamblen, A.B., Statistician, Mass. Department of Public Health.

In this study are included histories of deaths attributed to embolism, shock, and acute dilatation of the heart.

Nationality, age, occupation, and income seemed to have no importance with regard to sudden deaths. 61% of the women were born in the United States. 30% were poor. The incidence by age was quite evenly distributed over the years 20 to 40. 43% were primiparae, 92% of the mothers were not occupied outside of the home.

30 women had no prenatal care or prenatal care for less than 1 month. 20 women had prenatal care for 8 months or throughout pregnancy.

Table I. — *Prenatal Care.*

Prenatal Care for 1 Month or Less.	Prenatal Care throughout.
Total number 30	Total number 20
Foreign born 50%	Foreign born 20%
Comfortable circumstances 56.7%	Comfortable circumstances 100%
Primiparae 20%	Primiparae 55%
Normal delivery 36.7%	Normal delivery 40%
Delivery by forceps 10%	Delivery by forceps 35%
Delivery by version including 1 case with forceps used on after coming head, 20%	Delivery by version including 2 cases with forceps used on after coming head, 20%
Delivery by Cæsarean section 6.7%	Delivery by Cæsarean section 5%
Delivery by breech extraction 3.3%	– –
No delivery 10%	– –
Miscarriage or abortion 13.3%	– –
Live born babies 46.7%	Live born babies 60%

62 women were delivered in a hospital, $\frac{1}{3}$ of whom went to the hospital as an emergency measure. A midwife was employed in only 2 cases. In one case the midwife called the physician in consultation after 17 hours of labor. He found a face presentation and did a Caesarean section. This woman had a severe hemorrhage due to premature separation of the placenta. The death certificate gave the cause of death as pulmonary embolism. In the other case the midwife called the physician after labor had continued one day. The physician did a difficult version which took 1½ hours. The death certificate gave the cause of death as obstetrical shock.

There were 3 cases of acute bronchitis, 3 of influenza, and 2 of bronchial pneumonia. Of the 8 cases, 4 were delivered spontaneously and 4 by forceps. The respiratory complication developed before delivery in 1 of the 4 delivered spontaneously and in 2 of the 4 delivered by forceps.

40 women died within 24 hours of parturition. 23 were primiparae and 17 were multiparae.

TABLE II. — *Date of Death with Regard to Delivery.*

2 women died before delivery.
3 women died during delivery.
6 women died immediately after delivery.
7 women died between 10 minutes and 1 hour after delivery.
11 women died between 2 and 4 hours after delivery.
5 women died between 5 and 12 hours after delivery.
6 women died on the day of delivery.
5 women died on the day following delivery.
33 women died between 2 and 15 days after delivery.
15 women died between 15 and 33 days after delivery.
4 abortions.
3 no delivery.

100 Total.

31 deliveries were spontaneous, 27 by forceps, 20 by version including 5 with forceps used on after coming head, and 5 in which a forceps delivery was attempted first, 10 by Caesarean section, and 5 by breech extraction. There were 4 cases of miscarriage or abortion. Three women were not delivered.

NORMAL DELIVERIES.

Of the 31 women delivered normally, 7 died on the day of delivery and 16 died during the first week following delivery. There were 5 primiparae. In 26 cases the diagnosis was embolism or a question of embolism. In one of the two cases in which death was attributed to acute dilatation of the heart, the woman had a previous history of organic heart disease. Of the 3 other women delivered normally, one had a first degree laceration and was given ether for the sutures. Suddenly her pulse and color became poor, she showed airhunger and died 1 hour and 40 minutes after delivery. Another woman suddenly became restless, pale, and gasping, and died one-half hour after delivery. The other woman was found dead after delivery. She may have had a ruptured uterus.

TABLE III. — *Normal Deliveries.*

[Duration of life after parturition and cause of death.]

No. Dying.	Date of Death with Regard to Parturition.	Cause of Death.
7	Less than 24 hours after parturition	3 embolism 3 shock 1 acute dil. heart
1	1 day after parturition	1 embolism
2	2 days after parturition	2 embolism
1	3 days after parturition	1 embolism
3	4 days after parturition	3 embolism
2	6 days after parturition	2 embolism
1	9 days after parturition	1 embolism
2	10 days after parturition	2 embolism
1	11 days after parturition	1 embolism
2	12 days after parturition	1 embolism 1 acute dil. heart
1	13 days after parturition	1 embolism
1	14 days after parturition	1 embolism
1	17 days after parturition	1 embolism
2	21 days after parturition	1 embolism
1	22 days after parturition	1 embolism
1	23 days after parturition	1 embolism
1	26 days after parturition	1 embolism
1	4 weeks after parturition	1 embolism
31		

DELIVERIES BY FORCEPS.

Of the 27 women delivered by forceps, 16 died within 24 hours of parturition and 19 died during the first week following parturition. 19 women were primiparae, 7 women had had 2 pregnancies, and 1 woman had had 3 pregnancies. There were 2 cases of inversion of the uterus, one of which was that of a primipara. The other woman had had a previous forceps delivery. In 14 cases the diagnosis was

shock, in 12 cases embolism including 2 where septicemia caused the death, and in 1 case, acute dilatation of the heart.

TABLE IV. — *Deliveries by Forceps.*

[Duration of life after parturition and cause of death.]

No. Dying.	Date of Death with Regard to Parturition.	Cause of Death.
16	Less than 24 hours after parturition	12 shock 3 embolism 1 acute dilatation of heart
1	2 days after parturition	1 shock
1	3 days after parturition	1 shock
1	6 days after parturition	1 embolism
2	10 days after parturition	2 embolism
2	12 days after parturition	2 embolism (1 septicemia)
1	14 days after parturition	1 embolism
2	15 days after parturition	2 embolism (1 septicemia)
1	27 days after parturition	1 embolism
27		

DELIVERIES BY VERSION OR VERSION AND FORCEPS.

There were 20 women in this group. 10 were delivered by version, 5 by version after a forceps delivery had been attempted and 5 in which forceps were used on the after-coming head. 12 died within 24 hours of parturition. There were 8 primiparae. 12 women died from shock, 7 from embolism, and in 1 case, death was attributed to acute dilatation of the heart.

TABLE V. — *Deliveries by Version or Version and Forceps.*

[Duration of life after parturition and cause of death.]

No. Dying.	Date of Death with Regard to Parturition.	Cause of Death.
12	Less than 24 hours after parturition	11 shock 1 acute dil. heart
2	1 day after parturition	1 shock 1 embolism
1	7 days after parturition	embolism
1	11 days after parturition	embolism
1	13 days after parturition	embolism
1	14 days after parturition	embolism
1	16 days after parturition	embolism
1	33 days after parturition	embolism
20		

DELIVERIES BY CAESAREAN SECTION.

10 women were delivered by Caesarean section. A diagnosis of embolism was made in 7 cases including 2 in which septicemia caused death. In 2 cases death was attributed to acute dilatation of the heart, and in 1 case there was a question of shock.

TABLE VI. — *Deliveries by Caesarean Section.*

[Duration of life after parturition and cause of death.]

No. Dying.	Date of Death with Regard to Parturition.	Cause of Death.
2	Less than 24 hours after parturition	1 acute dil. heart 1 shock
2	1 day after parturition	embolism
2	4 days after parturition	1 (embolism) septicemia 1 acute dil. heart
1	8 days after parturition	(embolism) septicemia
1	9 days after parturition	embolism
1	25 days after parturition	embolism
1	26 days after parturition	embolism
10		

DELIVERIES BY BREECH EXTRACTION.

There were 5 cases of breech extraction. Three were primiparae. There were 3 deaths within 24 hours of delivery attributed to shock, and 1 death 20 days after delivery attributed to embolism. In one death 8 days after delivery, a diagnosis was made of embolism but death was due to septicemia.

TABLE VII. — *Cause of Death and Method of Delivery.*

METHOD OF DELIVERY.	CAUSE OF DEATH.							
	EMBOLUS.		SHOCK.		ACUTE DILATATION OF HEART.		TOTAL.	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Spontaneous	26	43	3	9	2	33	31	31
Forceps	12	20	14	43	1	17	27	27
Version or Version & Forceps	7	11	12	36	1	17	20	20
Caesarean Section	7	11	1	3	2	33	10	10
Breech	2	3	3	9	–	–	5	5
No delivery	3	5	–	–	–	–	3	3
Abortion or miscarriage	4	7	–	–	–	–	4	4
Total	61	100	33	100	6	100	100	100

3 women were not delivered. All were multiparae. One of them was 7 months pregnant. The doctor had put her to bed 2 weeks previously because of phlebitis of her left leg. The rest in bed caused great improvement, and she went down stairs and did some baking. 3 days later she was worse, but 3 days after this she got up again. She died suddenly a week later. The diagnosis on the death certificate was "Thrombo-Phlebitis, Pulmonary Embolism". Another woman was 8 months pregnant. Her left leg had been swollen for a month. Death was very sudden. The death certificate states "Presumably Pulmonary Embolism". The other woman was found dead on her bed. She was last seen by another woman who said she had cramps. She was near full term, was not flowing, and was undelivered. A blood stained male catheter of soft rubber lay on the floor. The death certificate said "Air Embolism of Traumatic Origin during Attempted Self-induced Abortion."

There were 4 cases of miscarriage or abortion, 2 at 3 months, 1 at 2 months, and 1 at 6 weeks. 3 in multiparae were self induced, and 1 in a primipara was a therapeutic abortion.

Of the 100 cases, 80 women were at full term.

PREMATURE DELIVERIES.

13 women were delivered of premature children. 8 of the 13 women were multiparae. 4 had had no prenatal care. 5 were delivered spontaneously, 3 by forceps, 4 by version, and 1 by breech extraction. In 9 cases a diagnosis was made of embolism including 2 in which death was due to septicemia. In 2 cases death was attributed to acute dilatation of the heart, and in 2 cases to shock. One woman had a history of acute Bright's disease in the first month of pregnancy and a fall shortly before delivery. One woman had large fibroids of the uterus. Labor was induced in one case for kidney condition and in another because a hemorrhage was threatening. 2 women had a placenta praevia and 2 had premature separation of placenta. 4 babies were stillborn, 3 babies died shortly. 6 babies were alive when last heard from.

STILLBIRTHS.

In the entire group 26 women were delivered of stillborn children.

TABLE VIII. — *Causes of Stillbirths.*

Difficult delivery	17
Premature separation of Placenta	2
Fall of mother	2
Toxic condition of mother	1
Hemorrhage of mother	1
Not stated	3
	26

EMBOLISM OR A QUESTION OF EMBOLISM.

There were 61 cases in the group of 100 sudden deaths in which a diagnosis was made of embolism or a question of embolism. In only 2 cases was an autopsy held.

Symptoms of sepsis were noted in 22 cases including 7 in which septicemia caused death. 21 mothers had a history of phlebitis or thrombosis and 1 mother had a history of distention, vomiting, and a temperature of 101–6.

8 mothers had pneumonia, influenza or bronchitis.

26 mothers were delivered spontaneously. There were 2 cases of laparotomy one of which was a case of Caesarean section, and the other was an exploratory laparotomy following rupture of the bladder after a delivery by version.

The location of the embolus was given as pulmonary in 38 cases, cerebral in 9 cases and coromary in 4. In 10 cases the patient complained of precordial pain and in 8 cases of dyspnea.

NOTES TAKEN FROM THE HISTORIES.

Deaths Due to Embolism.

(*a*) Spontaneous delivery. On the 23rd day, while resting in bed in apparently comfortable condition, patient sat up to relieve herself from some respiratory embarrassment, suddenly became dyspneic and cyanotic, and froth appeared about the mouth. In spite of all available treatment patient died in 15 minutes.

(*b*) Spontaneous delivery. Normal in every way. Well until 12th day after delivery when suddenly had pain in leg, which became severe. Patient died in about an hour.

(*c*) Normal pregnancy and delivery. On 4th day after delivery she seemed perfectly well. Was talking and laughing with her husband, raised herself in bed and died suddenly.

(*d*) Spontaneous delivery. Patient had been 12 days in hospital. She had slight phlebitis early in puerperium. Symptoms disappeared — no fever, etc. Case perfectly normal, was going home next day. Patient first sat up on the 10th day. On the 11th day, she sat up in chair. Early on morning of 12th day walked to bath (in next room). At 9.30 was sitting in rocker and suddenly died.

(*e*) Caesarean section. Normal convalescence for 10 days. Was in perfect condition at midnight and died at 2.00 A.M.

(*f*) Normal delivery and was sitting up on the 10th day. She walked a few steps about the 14th day and fell over dead.

(*g*) Spontaneous delivery. Left patient in excellent condition. 4 hours later she had sudden pain and was "smothering, hollering for air, and grasping at her heart" her attendants said. Died in 20 minutes, before doctor's arrival.

(*h*) Normal delivery. No hemorrhage. Was doing well and was up in chair on 10th day. Went to toilet and collapsed. She died in few minutes, before the arrival of the doctor.

Shock.

30 out of the 33 in this group died on the day of delivery. 14 women were delivered by forceps, 12 by version including 5 in which forceps were used on the after coming head and 3 in which a forceps delivery was attempted first, 3 by breech extraction, and 1 by Caesarean section. Only 3 deliveries were spontaneous. There were 24 cases of dystocia. Hemorrhage occurred in 10 cases, 4 of which were also cases of dystocia.

Acute Dilatation of the Heart.

There were 6 mothers in this group all of whom were multiparae except 1 woman who had had an early miscarriage $1\frac{1}{2}$ years before the final pregnancy. 1 woman had 5 pregnancies, 1 had 6, 1 had 8, and 2 had 2. 2 women were delivered spontaneously, 1 by forceps, 1 by version, and 2 by Caesarean section.

Of all maternal deaths the group of "sudden deaths" is perhaps the saddest. Many histories state that the mother was apparently doing well immediately before death. It is evident that embolus was sometimes used as a convenient term when the attending physicians were not sure of the cause of a sudden death. The terms embolism, shock, and acute dilatation of the heart were indefinite in the minds of some of the physicians and they themselves were not satisfied with their diagnoses. Out of 363 histories examined, embolism was given as a cause of death in 94 cases, and in 28 of these the doctors who collected the data for this study did not feel that the diagnosis was justified by the symptoms reported and the history of the case. A study of the histories of "sudden deaths" emphasizes the necessity of unremitting vigilance especially in cases of difficult delivery, hemorrhage, phlebitis and thrombosis, and heart or lung disease.

THE COMMONHEALTH.

QUARTERLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
FRANCES KLEIN, S.B., ASSOCIATE EDITOR.
Room 546, State House, Boston, Mass.

New England Health Institute in Boston in May. — Another great project for health education is launched! About 1,000 people, including physicians, dentists, nurses, social workers, teachers, and others interested in public health, will gather in Boston May 5th–10th, with pencil and pad in hand. Pencil and pad, because this Institute is not merely a series of lectures; it is, rather, a study course on all aspects of public health, with the leading authorities in this field as Instructors. The Institute is carried on under the auspices of the State Health Departments of New England, the U. S. Public Health Service, Yale and Harvard Schools of Public Health, and the Departments of Biology and Public Health of the Mass. Institute of Technology and Simmons College. There will be thirteen sections; each will meet for from five to nine hour periods during the week. The chairmen of the sections are:

Section	Chairman
Venereal Disease	Dr. J. Edwards Kerney, Providence, R. I.
Tuberculosis	Dr. Robert Kerr, Manchester, N. H.
Foods and Food Control	Dr. E. Monroe Bailey, New Haven, Conn.
Social Work	Mr. Robert Kelso, Boston, Mass.
Preventable Diseases	Dr. F. X. Mahoney, Boston, Mass.
Mental Hygiene	Dr. D. A. Thom, Boston, Mass.
Nutrition	Miss Lou Lombard, Boston, Mass.
Health Education	Miss Mabel Bragg, Newton, Mass.
Child Hygiene	Dr. Richard M. Smith, Boston, Mass.
Industrial Hygiene and Accident Prevention	Dr. Halstead Murray, Framingham, Mass.
Sanitation	Prof. I. V. Hiscock, New Haven, Conn.
Public Health Nursing	Miss Margaret Stack, Hartford, Conn.
Health Administration	Dr. Thomas Tetreau, Portland, Maine.

If you should wish to receive further information in regard to the Institute, including a preliminary program, or to register at this time, kindly communicate with Dr. Merrill Champion, Chairman of the Program Committee, Room 545, State House, Boston.

The American Child Health Association Offers Teachers' Scholarships. — An opportunity for the study of health education problems and their solution has been opened to teachers of the elementary schools through a set of scholarships offered by the American CHILD HEALTH Association. Two Massachusetts cities, Lowell and Somerville, are among those entering contestants for the fifty awards of $500 each made possible by an appropriation from the Metropolitan Life Insurance Company.

This set of scholarships, the second of its sort issued by the Association has a three fold purpose; to create an interest in health education, to raise the health standards of every child and every family in the United States and to find and train teacher leaders. Throughout the country there are teachers working over health education problems who need stimulation and encouragement. The teacher is the first link in the chain of better health. By improving her methods, it is possible to arouse the interest of the child and through the child to bring the family into the health ways of right living.

Excellence in health education will determine the scholarship awards. The work of each teacher is to be measured, through her plans, her children's work and her children's health. As health education in its ideal form must carry over into every day life the proper health habits, this last measuring rod for each contestant is the most important. All the posters and plays and exercise books done by the boys and girls themselves, all the methods and devices employed by the teacher will be considered.

A number of conditions control the awards. In the first place the offer is made to teachers in cities having a population of 50,000. Exception is made in the case of states having no cities of such population. A satisfactory number of applicants in each city must agree to form a local competing group. Only teachers of the first nine grades are eligible for scholarships which will be awarded on the basis of several consecutive months' work, ending not later than May 15th, 1924. Scholarships may be used for Summer School courses at accredited teacher training centers, in the summer of 1924 or for work in accredited Colleges, Universities and Normal Schools during the school year 1924–25.

A local Committee on Awards will choose from the local group of competing teachers the three contestants who in the opinion of the Committee have done the best work. These three names will be submitted to the Committee on Awards of the American CHILD HEALTH Association as a basis for final choice.

It is not the aim of the American CHILD HEALTH Association to create a new class of health experts but to enable teachers doing good work to be still more efficient. To improve their professional training seems one means of broadening their vision and helping them to work out their own problems. In each of the thirty or more competing cities, contest work has already begun and scholarship applicants are enthusiastically drawing up their best plans.

A series of eighteen short weekly talks on Nutrition is being sent to all school nurses in the State. The purpose of the series is to discuss some of the various phases of nutrition of special interest to people who are dealing with the health of the school child. The series will cover discussions of the following:

1. Height and weight tables
2. Normal growth of children
3. Metabolism
4. Food for health
5. Caloric requirement of children
6. Mineral requirement of children
7. The vitamines
8. The relative value of raw, dried, pasteurized and condensed milk
9. The problem of the undernourished child
10. Diet for the teeth
11. The candy problem in the schools

Subjects for other topics for discussion will be gratefully received. The series started in February. Copies may be obtained by writing to Miss Lou Lombard, Consultant in Nutrition, Mass. Department of Public Health.

The Health Films Committee of the National Health Council writes about the new film "Working for Dear Life" as follows:

"That one's body requires the same regular and thorough examination that the various mechanical contrivances receive which make for the daily comfort of the man of to-day, is the central idea of this very effective health film. But more than this, the film also succeeds in giving the audience a working idea at least, of what a thorough health examination should be.

"The scenario is well planned and the argument is convincing. The photography is very good, and the audience is sufficiently interested in Mr. Jones, the so-called

hero, to feel satisfaction in his decision to give the intelligent, systematic care to his body that he has always given his automobile. Unquestionably this film should have wide circulation because it brings a vitally important health message to to every one." — REVIEW.

After two years' probation, the Public Health Nursing Section of the American Public Health Association was made permanent at the Boston Annual Meeting in October. While most nurses are already overburdened with organizations, this affiliation is certainly a privilege that should be accepted by all public health nurses in executive positions. Nurses who are members of the Association desiring transfers to the Public Health Nursing Section may request a transfer from the General Secretary. Those desiring membership should send their names and addresses to Mr. Homer N. Calver, General Secretary, American Public Health Association, 370 Seventh Avenue, New York City.

Attention is called to the fact that a practical method is available for prevention of rabies in dogs. This method is in use in Connecticut where 3,000 dogs have been inoculated. One injection of phenolized virus is sufficient to protect a dog.

Many reports are received saying that children who return to school after a few days' illness are excluded by reason of showing signs of scarlet fever. Parents should call a physician when a child is ill, or at least have the child inspected before sending him or her back to school.

What do our readers think of a membership of 700 for a District Nursing Association in a town of 2,374 inhabitants? Can you beat it in the State? Any one who contributes to the support of the Association becomes a member and nearly every adult person in the town of Norton is thus willingly carrying a share of the burden.

The Friendly Aid Association of Wellesley has plans drawn and a large part of the $10,000 budget raised for the building of its new health center. The question of a name is now the paramount issue.

Miss Ruth Upton, Franklin County Red Cross, writes as follows: "We borrowed the portable dental chair from the Division of Hygiene to demonstrate to rural communities the need and value of dental service. The experiment proved so successful that the Red Cross has now purchased an equipment to reach the small towns."

Write to us if *you* wish to try a similar experiment.

The nurses of the Division of Hygiene are available to give assistance to local nurses in the development of various phases of public health work.

Athol celebrated the cause of Health with a three day health program, January 16, 17 and 18. The town is certainly to be congratulated on the exhibit which covered baby hygiene, school hygiene, nutrition, mouth hygiene, industrial hygiene and social hygiene. The separation of the displays into booths according to subject made it possible to have the exhibit all-inclusive, and yet easy to study.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of October, November and December 1923, samples were collected in 120 cities and towns.

There were 1,544 samples of milk examined, of which 451 were below standard, 22 samples had the cream removed, and 120 samples contained added water.

There were 544 samples of food examined, of which 153 were adulterated. These consisted of 122 samples of eggs, 23 samples of which were sold as fresh eggs, but were not fresh, 87 samples of cold storage eggs which were not properly labeled, 12 samples which contained decomposed eggs; 19 samples of sausage, 13 of which were colored, and 6 of which contained starch in excess of 2 per cent; 1 sample of kiszka sausage which contained more than 2% and less than 20% buckwheat; and 6 samples of olive oil which contained cottonseed oil.

There were 118 samples of drugs examined, of which 20 were adulterated. These consisted of 2 samples of camphorated oil; 17 samples of spirit of nitrous ether; and 1 sample of spirit of peppermint; all of which were deficient in the active ingredient.

The police departments submitted 1,757 samples of liquor for examination, 1,633 of which were above 2.75% in alcohol. The police departments also submitted 19 samples for examination, 10 of which were morphine, 2 cocaine, 1 codeine, and 6 samples examined for poison with negative results.

There were 59 hearings held, and 14 warnings issued, pertaining to violations of the Food and Drug laws.

Forty-one samples of coal were examined under the coal law, 9 samples conforming to the law, and 32 samples contained an unreasonable amount of impurities.

There were 80 convictions for violations of the law, $2,020 in fines being imposed.

Ferdinand F. Bailot and Joseph Toporowski of Cheshire; John Kuken of Amesbury; Ray Smith and Angelo Andronicos of West Springfield; John Collias, James Di Comes, and Thomas Porro of Pittsfield; Louis Pechillis of Stoughton; Charles A. Barnett of Great Barrington; Watson L. Bennett, Jr., of State Line, on 2 cases; George Cosines, Peter Argeropoulos, William Hanna, Christy Mamolis, James Manuell, and George Pierce, all of Springfield; Alfred Fournier of Lawrence; Manuel Almedia, Joseph Costa, and Julia Ferria of Dartmouth; Joseph Hamel of Lanesboro; Clement Lotti of Southbridge; William Owen of Westport; John S. Gracie and Manuel Mederios of South Dartmouth; Robert F. Seabury of North Dartmouth; Wilber F. Lakin of West Quincy; and Clifford E. Stearns of Lexington, were all convicted for violations of the milk laws. James Di Comes of Pittsfield appealed his case.

Henry J. Furneaux of Lawrence, on 2 cases; John Wojtaszek of Adams; and John Wojtaszek of Gloucester, were convicted for violations of the food laws.

Abraham D. Black of Worcester, on 2 cases, was convicted for violation of the mattress laws. Both cases were appealed.

George E. Barber of Winchester, New Hampshire; John Brockoff of Torrington, Connecticut; and Samuel Nager of Great Barrington, on 2 cases, were convicted for violation of the slaughtering laws.

Stephen Castone, William Corey, Michael Czaj, William Desrosiers, Guiseppe Lappellano, David Levine, George Makor, Samuel Miringoff, Emerile Oulette, Morris Zack, Stanislaw Balchunas, Filadefino Gangi, Jacob Loza, George Silva, James Stanford, and Samuel Zappala, all of Lawrence; John H. Kenyon, Morris Kiminsky, Daniel Klevs, A. H. Phillips Inc., and Arnold Sherman, all of Springfield; Louis Wald of Roxbury; Cooperative General Store, Inc., of Adams; Monthos Dakos and John Zolota of Peabody; Antonio Florio, Caesar Franciosi, and Nicholas Zinna of Leominster; Eastern Creamery Company, Inc. of Worcester; Toffur Salah, Kalal Salah, Simon G. Kyrouz, Benjamin Raizin, and John Raymond, all of Gloucester; and John A. Levy of Salem, were convicted for violations of the cold storage laws.

Benjamin Brown of Quincy; Konstantino Prouski, The Ginter Company, and Louis Uretzsky of Springfield; and Meyer Kronich of North Adams, were convicted for false advertising.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 20 samples, by Robert F. Seabury of North Dartmouth; 12 samples, by Joseph Costa of New Bedford; 10 samples, by Bento Mark of Fall River; 6 samples, by Joseph B. Dean of Adams; 4 samples each, by Manuel Mederos, and Julia and Myron Ferria, of North Dartmouth; 3 samples, by William Owen of Westport; 2 samples, by Joseph Hamel of Lanesboro; and 1 sample each, by Frank Traivis and Antone Sousa of Somerset.

Two samples of milk which had the cream removed were produced by Charles A. Wilson of Medway.

Sausage which contained starch in excess of two per cent was obtained as follows:

Two samples from the Greylock Sausage Company of Adams; 1 sample each from Henry Furneaux and John Holt of Lawrence; Ferdinand Leuchtenberger of Adams; and Keuchler Brothers of New Bedford.

Sausage which contained coloring matter was obtained as follows: 8 samples, from the Colonial Provision Company, 4 samples, from Julius Gray, both of Boston; and 1 sample, from the Mohican Company of Haverhill.

One sample of kiszka sausage which contained more than 2% and less than 20% buckwheat was obtained from the Greylock Sausage Company of Adams.

One sample of olive oil which contained cottonseed oil was obtained from George Armenis & Company.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of September, 1923: 488,100 dozens of case eggs, 130,550 pounds of broken out eggs, 3,179,568 pounds of butter, 686,324 pounds of poultry, 2,810,473 pounds of fresh meat and fresh meat products, and 3,605,354 pounds of fresh food fish.

There was on hand October 1, 1923, 16,574,310 dozens of case eggs, 1,872,985 pounds of broken out eggs, 14,805,884 pounds of butter, 2,467,994 pounds of poultry, 9,006,738 pounds of fresh meat and fresh meat products, and 15,518,118 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of October, 1923: 501,150 dozens of case eggs, 167,493 pounds of broken out eggs, 2,193,155 pounds of butter, 1,151,451 pounds of poultry, 3,399,645 pounds of fresh meat and fresh meat products, and 1,980,287 pounds of fresh food fish.

There was on hand November 1, 1923, 12,955,050 dozens of case eggs, 1,714,954 pounds of broken out eggs, 12,347,372 pounds of butter, 2,605,899 pounds of poultry, 6,521,417 pounds of fresh meat and fresh meat products, and 14,491,805 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of November, 1923: 567,690 dozens of case eggs, 85,342 pounds of broken out eggs, 1,402,879 pounds of butter, 2,293,517 pounds of poultry, 5,030,668 pounds of fresh meat and fresh meat products, and 1,482,321 pounds of fresh food fish.

There was on hand December 1, 1923, 9,102,240 dozens of case eggs, 1,489,734 pounds of broken out eggs, 9,487,418 pounds of butter, 3,962,114 pounds of poultry, 8,924,651 pounds of fresh meat and fresh meat products, and 12,136,982 pounds of fresh food fish.

There were five confiscations, consisting of 80 gallons of decomposed oysters, 1,483½ pounds of decomposed turkeys, 250 pounds of decomposed veal, 20 pounds of pork afflicted with hog cholera, and 14 pounds of tuberculous pigs' heads.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, Eugene R. Kelley, M.D.

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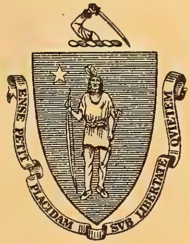

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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THE PART OF PHYSICIAN AND NURSE IN PREVENTING SEPSIS AND ECLAMPSIA.

L. V. Friedman, M.D., Professor of Obstetrics, Tufts College Medical School.

Statistics of Sepsis and Eclampsia in Massachusetts.

FOR the past four years the public health authorities, the physicians and nurses of some sections of the United States, have been much disturbed by the large mortality of mothers in childbirth.

In Massachusetts there were in 1922, 559 maternal deaths, and as there were 87,636 births, we have lost one mother out of every 156 delivered. Of these 559 deaths, 159 were due to septicemia, 130 to eclampsia, and 109 followed a Cæsarean operation. In other words, 71% of these deaths were due to one of these three causes.

[This percentage requires some correction for an error of repetition, but it is in the main correct.]

It has been the custom to consider practically all of the deaths due to sepsis and eclampsia as preventable, and although some small reservation should be made, these two causes, embracing 51% of the deaths, can and ought to be reduced; but to these preventable deaths, a third cause, Cæsarean section may fairly be added, because, as will be maintained in a subsequent part of this paper, this operation is being performed unnecessarily, and in poorly chosen instances. For the purposes of this paper, we shall not consider the 29% due to abortions, hemorrhage, and extra uterine pregnancy, etc., which are not so obviously preventable.

A brief analysis of the vital statistics of Massachusetts shows that after making reasonable allowances for the drawing power of hospital centers, the deaths from sepsis and eclampsia were evenly distributed throughout the Commonwealth, and the rate of deaths from these causes was slightly below the rate in the United States birth registration area. It is interesting to note, that if we except 1918 and 1920 (the influenza years) the rate of deaths from puerperal causes has not changed materially in the past thirteen years.

Although you are all familiar with the common causes of sepsis in the recently delivered woman, and with the symptoms and course of the disease, and perhaps to a lesser extent understand the common manifestations of what we call eclampsia, it has occurred to me, that it would be worth your time to consider the elementary facts of these two grave diseases, since a review of any problem, from its simpler terms to its most complex ones, frequently leads to new points of view, and to clarification of the problem.

A Consideration of Puerperal Infection.

In 1842, O. W. Holmes, here in Boston, and in 1847 Semmelweiss in Vienna, gave the medical profession the first correct idea of puerperal, or lying-in infection. The term puerperal septicemia really describes the last stage of puerperal infection, when the whole body including the blood stream itself is infected. In its early stages, it ought to be designated puerperal sepsis, or puerperal infection.

This infection occurs during or shortly after labor. It is due to the entrance of certain bacteria into the vagina, and thence into the uterus. These bacteria multiply with great rapidity on the blood-clotted inner surface of the uterus, where they find a favorable place for growth.

From these bacteria and from the tissues which they destroy, a poisonous substance is absorbed by the patient, who soon shows a marked rise in temperature and pulse, and later a foul pus-like discharge from the uterus.

These bacteria are usually from one of two sources: either they are lying dormant in the vagina of the patient, and are activated by the labor, with its bruising of tissues, or they are introduced from the fingers of physician or nurse, during the manipulations of delivery.

There is a third source, which we will consider in greater detail presently. Also there are other less common forms of uterine infection, supposed to originate from other parts of the patient's body, but we shall neglect these, as they are not preventable in the sense that we use the word in this paper.

There is, then, little doubt that the majority of severe puerperal infections originate in one of two ways:

(1) By bacteria introduced into the patient's vagina, on the examining fingers of the physician, who has previously contaminated his fingers by touching pus, probably in opening or dressing an abscess in another patient.

(2) By bacteria which were in the vagina, being carried up into the uterus, either by the physician's hands or instruments during the manipulations necessary in an operative delivery.

You should not be allowed to rest under the misapprehension that all of these puerperal infections are fatal. Although complete statistics can not be obtained, it is probable that five recover for each one that dies; but unfortunately, the recovery is not complete, and these patients remain partial invalids for years, and in some cases for life.

In the natural delivery, where no vaginal examinations are made, and the immediate surroundings of the patient are clean, there is only a remote chance of infection; but there are other dangers which threaten the life of the patient, unless the physician by some form of examination can determine whether labor is progressing normally or not. Consequently, it has long been the custom for physicians to make numerous vaginal examinations during labor.

For the past twenty-five years, in good practice, these examinations have been made with boiled (*i.e.*, sterile) gloves, and in recent years the number of examinations made during any one labor has been reduced to a minimum.

What the Physician can do to prevent Sepsis.

Still more recently the well trained obstetrician has learned to dispense with the vaginal examination almost entirely, by using a rectal examination. This is made with a clean, but not sterile glove, and although in some instances it does not impart as complete a knowledge of the conditions, it is generally satisfactory and constitutes a great advance in the prevention of infection. There can be little doubt that when its use becomes general, it will be followed by a definite decrease in puerperal infection.

The gloves used for rectal examining should be boldly marked, so as to be easily distinguished from other gloves which are to be sterilized and used for the actual delivery, whether normal or instrumental.

The next point to be considered, is a more complex one, and one which is vastly more difficult to inculcate in physicians and patients. This has to do with the number of operative deliveries.

In Massachusetts in 1922, 45% of the deaths of mothers, six months or more pregnant, followed instrumental deliveries.

Obstetric operating is still handled in a slipshod manner, which would not be tolerated in equally serious surgery for the relief of other conditions.

The patients, on the other hand, seek obstetricians who are known to lessen the hours of pain by an early operative delivery. It seems proper to demand of such physicians that the technical facilities for operating should be adequate, as they are in a well equipped hospital, and that the physician himself, should have an unquestionable aseptic technique. This is seldom the case when the operation is performed in a private house without adequate trained assistants.

The Part of Cæsarean Section in the Mortality due to Sepsis.

As we have noticed in the statistics mentioned in the early part of this paper, 20% of the total maternal mortality in Massachusetts in 1922 was due to Cæsarean section. Although some small part of the mortality was ascribed to, or was actually due to other causes, it is well known to all competent obstetricians that most Cæsarean deaths are due to infection in one form or another. It is for this reason that the Cæsarean operation has been included in this consideration of preventable deaths.

It is not intended to condemn the Cæsarean operation, which when performed on the properly selected case, in a good hospital, before labor has set in, or early in labor, has a mortality of from 2 to 4%, and is an important and necessary aid to the obstetric art; but this operation is performed to-day with disproportionate frequency.

In 1922, one out of every 78 births in Massachusetts was by Cæsarean; consequently there can be little doubt that a large percentage of these operations was unnecessary.

It is performed by surgeons who admit frankly that they do it because they know nothing about other methods of delivery.

It is done at the request of patients who "have decided to have a Cæsarean", so as to avoid the pain of labor.

This state of affairs is absurd. It could be justified only by a remarkably low mortality, and the reverse is the case; for this operation is charged with 20% of the maternal mortality.

Sexual Intercourse during the Latter Part of Pregnancy.

Finally, there is another cause of puerperal infection, which the physician can do much to prevent; this is sexual intercourse during the latter part of pregnancy. Curiously enough, among animals and among most savage people, the corrective natural instincts are strong enough to prevent this cause of puerperal infection; but among the so-called civilized communities, it is commonly practiced.

For some years, physicians have known that it is one of the causes of puerperal sepsis. It is mentioned in the authoritative text-books, but until recently the profession as a whole has not instructed patients as to its danger. It seems as if in this era of free speaking, it is up to physician and nurse to inform the pregnant woman of the great danger to which she is subjected by this practice, and so to institute a campaign against one other cause of infection.

To recapitulate then, the physician should use the vaginal examination less and the rectal examination more.

He should do less operating, unless he plans and executes his obstetric operating with as much care in selection of place and technique as is considered necessary in abdominal surgery.

Fewer Cæsareans should be done, that is, the indications for the operation should be carefully considered, and it should not be done unless the possibilities for good technique are available.

The Part of the Nurse in preventing Puerperal Infection.

Of first importance, is the development by the nurse, of a careful aseptic technique, for use during the labor. She should never make a vaginal examination under any circumstances. Nor should she touch the genitalia in attempts to learn whether the baby is near at hand or not. Such attempts during labor may easily introduce infection, and serve no really useful purpose.

In scrubbing the patient, preparatory to delivery, she must learn to avoid touching the anal region; and in the hours immediately after the delivery, she should use skill in applying the pads, so that the surface touched by her hands does not come in contact with the patient.

Only less important than these technical matters, are the general influence and teaching ability of the nurse. Certainly among the masses, and often in the better educated classes, the nurse commands a respect and confidence not always accorded to the physician.

It seems entirely legitimate for her to take advantage of this personal confidence, to teach the patient such things as the dangers of sexual intercourse during the latter months of pregnancy; the importance of bearing a certain amount of pain, especially in first labors, rather than to insist upon an early operative delivery, with its double dangers of permanent injury, and the very marked possibility of infection. Also she can correct the current impression among the laity that the Cæsarean operation can be used with impunity to prevent labor pains.

The fact has not yet been adequately appreciated that both physicians and nurses have a remarkable opportunity for teaching the lay community elementary common sense, as applied to their own health; and when this teaching is realized on a large scale, its effect on the mortality from sepsis, as well as in other directions, will be very definite.

A CONSIDERATION OF ECLAMPSIA.

The name itself means a "convulsion", but is commonly used to describe a disease which occurs in the latter half of pregnancy, and especially in the last two months. The term toxemia or pre-eclamptic toxemia is commonly used to describe the early stages of the disease, before the occurrence of convulsions.

The cause of this disease is not yet fully understood; but we can say that it is a systemic poisoning, which occurs in pregnancy, and probably this poison is received from the child, or from the placenta or after-birth, as it is termed.

This poisoning shows itself in certain well defined symptoms, some of which the patient may notice. These are persistent headache, swelling of the legs, hands and face, a return of the vomiting which ceased at the end of the third month, and blurring of vision, commonly described as "seeing specks". It is wise to remember that any one of these symptoms may occur in pregnancy without being the forerunner of this serious poisoning. Nevertheless, immediately upon the appearance of any one of these symptoms, the patient should see a physician, and take with her a specimen of the urine.

The physician should examine the urine and take the blood-pressure. If the urine contains albumen, and the blood-pressure is above normal, the diagnosis of toxemia is made, and treatment begun.

In spite of the fact that the exact cause and nature of the disease are not known, and although the treatment of its later stages is very inefficient, prompt prophylactic treatment almost invariably prevents the progress of the disease to the grave and final stages.

THE PART OF THE PHYSICIAN IN THE PREVENTION OF ECLAMPSIA.

The importance of the pre-natal clinics in the prevention of eclampsia can not be overrated. The pregnant woman, and a specimen of her urine, should be examined at least once a month during her pregnancy, and twice a month during the last two months. If at any of these examinations evidence of toxemia be found, the examinations must become more frequent. If the blood-pressure is over 120 (systolic), diet and catharsis are indicated. If it reaches 140, the patient should be removed to a hospital. Much can be done to prevent the appearance of these conditions by careful advice in the early months of pregnancy.

In the large centers, patients generally know the importance of pre-natal visits, and this knowledge is to be spread everywhere. Heretofore the advice at the pre-natal visit has usually consisted of warning against over indulgence in meat and other protein foods; in prescribing cathartics to prevent constipation, thus ridding the body of the accumulating food poisons; and in urging the patient to drink quantities of water; but it is apparent that more strictly prohibitive advice will soon be a rule in all pre-natal clinics.

It seems probable that no pregnant woman, after the beginning of the sixth month, should use any salt at the table, nor should she indulge in foods which contain a large amount of salt, such as salt fish or olives. This salt food is a resource of the pregnant woman to induce thirst for the water which the physician orders; but it tends to keep the water in the body, instead of having it flush out the kidneys, and so remove poison.

After the sixth month, meat of all kinds (including chicken which some of the laity refuse to regard as meat) should be eaten sparingly, if the patient is free from all symptoms; and not at all if there be symptoms of toxemia.

Perhaps the most important of all the newer methods of pre-natal care consists in watching the weight of the patient, to prevent overeating. The old adage that the pregnant woman should eat for two, has done incalculable harm.

If the pregnant woman eats excessively of carbohydrate food, she is apt to develop diabetes, as it is well known that her tolerance for sugar is low; if she overeats protein food, she is in danger of toxemia. In any case, she develops a great deal of fat, which makes proper exercise difficult, decreases the space through which the child must pass, and produces a larger child, and consequently a more difficult labor.

The exact amount of weight a woman should gain in pregnancy, varies with different individuals. It is obvious that a woman who weighs 180 lbs. at the beginning of pregnancy, should not be permitted to gain as much as one who begins with a weight of 100 lbs.

Modern civilization increases enormously the amount of food available, and at the same time decreases the physical exercise formerly necessary to obtain the food and to prepare and serve it.

During the war there was a marked decrease in the incidence of eclampsia in the European countries engaged, which has been explained by the greater cost of food, especially meat, and consequent diminished amount available in the average family; and by the increased amount of physical work done, because of the lack of servants among the well-to-do, and the actual physical labor in shop and field by the pregnant woman of the working classes.

It should then be part of the duty of every physician, to warn pregnant women against overeating.

He should test the urine and take the blood-pressure at least once in two weeks during the last two months of pregnancy.

He should examine the patient for edema or swelling of the legs, hands and face; and he should convince himself, by detailed questioning of the patient, that the movements of the bowels are efficient, and that the 24 hour amount of urine is ample.

The Part of the Nurse in preventing Eclampsia.

One need have little hesitation in saying that the total prevention of eclampsia might be accomplished by nurses alone. We have to depend very largely upon the nurse for the education of the pregnant woman, as to the necessity for early pre-natal care. She must disseminate this teaching at all times, and in all places.

Every trained nurse can learn easily how to examine the urine for albumen, and how to take the blood-pressure. Thus equipped, she can guard patients who are remote from the pre-natal clinics of medical centers.

She must remember that no one symptom is conclusive evidence of toxemia. Thus a large amount of albumen in the urine may be the evidence of some other disease, but if it be accompanied by a blood-pressure over 130, and if the patient has swelling of legs and hands, she is justified in advising the patient to see her doctor at once.

The nurse can urge the importance of not overeating, and the avoidance of meats and meat soups.

She can teach the patient to measure the 24 hour amount of urine, as it is of the first importance in the prevention of eclampsia that the 24 hour amount should never fall below three pints, and ought to be nearly four pints; and if it be below the required amount, she can urge an increase in the amount of fluid consumed, which will increase the amount of the urine.

The nurse may question the patient as to elimination by the bowels, and explain that this action, always important for health, is especially so for the pregnant woman.

A delicate question of professional ethics arises not infrequently for the nurse's decision. It may happen that she will find a pregnant woman with the beginning symptoms of toxemia, whose physician is neglecting these symptoms, and not demanding specimens of urine of the patient. It seems to me as if in this era of practical affairs, the welfare of the patient must be placed ahead of old-fashioned professional rules of conduct. If the nurse knows the physician personally, if he be an approachable and conscientious person, she can go direct to him, and in tactful manner confide to him her findings, and her fears; but if nothing can be accomplished in this wise, she should select some level-headed member of the patient's family, and state clearly the dangers of this neglect. More, she cannot do.

Certain General Conditions which increase Puerperal Sepsis.

Although physician and nurse can only indirectly improve the conditions about to be mentioned, they should realize that their opinion, if well grounded and thoughtfully expressed, will carry much weight with citizens, public officials, and the executives of hospitals.

It is frequently claimed that the lay prejudice against hospitals is justified by the great number of deaths which occur in these institutions. After making due

allowance for the fact that a hospital is the final location for desperate cases, one must admit that especially in maternity work, this prejudice is to be combated not by argument, but by improvement, and the time has been reached when the specific improvements can be stated. These improvements apply to two classes of hospitals — public and private.

Especially in small poorly organized private hospitals, puerperal sepsis is constantly present. The lying-in woman must be isolated from surgical cases. She cannot lie in the same open ward with cases of erysipelas and escape infection. She can not be handled by the same nurse who is doing pus dressings, and escape; yet these conditions exist in many private hospitals in this vicinity.

In the larger public hospitals there are usually separate maternity wards; but no adequate isolation of nurses, who are apt to take care of an infected surgical case, and a short time later be called to scrub a patient in labor.

As an illustration of what can be accomplished by strict isolation of the maternity ward from the surgical, and by strict separation of the nurses, there have been delivered, in a private hospital with reliable records, in the past three years, 931 women, with no mortality from sepsis.

In this same hospital, a special operating room is reserved for Cæsareans, and in the past three years, 114 Cæsareans have been done in this room, with two deaths, that is 1.75%.

It is only necessary to repeat, that the state wide mortality from sepsis was 25%, and from Cæsarean 8.8%.

SICK ABSENCE.

By Arthur B. Emmons, 2d, M.D., Director, Harvard Mercantile Health Work.

Its Correlation with Physical Rating.

SICKNESS is today the greatest single cause of lost time in industry and mercantile life. It is costly both to the business, in lost time and interference with team work, and to the workers, in wages, human energy and suffering.

It is the purpose of this paper to briefly review the facts as to the amount and causes of sickness in the workers and to correlate these facts with our strategy of attack on the problem, indicating hopeful methods of advance.

"The British health insurance table shows at least 14,476,000 weeks lost on an average each year in England and Wales by 14,000,000 insured persons", a little over a *week* by each worker. (Kelley, Eugene R., M.D., Nation's Health, May 1923, p. 4.)

Quinby of the Hood Rubber Company (Nation's Health, October 15, 1921, p. 572) reports that their 6,700 factory workers lost *6.61 days per year*, the men losing five days, the women 8.75.

Price (George M. Price, Union Health Center Journal, 1924, introduction) states that about *9 days* per person is lost from illness among the 65,000 members of the garment workers union of New York City.

Five of the stores of the Harvard Mercantile Health Work, situated in four different cities, with a combined population of 10,200 in 1923 lost 68,621 days or *6.72 days* per person from illness and injury.

While these records of absence for illness are not accurately comparable, they at least show that in widely different localities and occupations a large amount of time, approximately a week, is lost annually by workers on account of illness.

Let us now study the type of illness which causes sick absence.

I. *Respiratory Diseases:* Clark (Health Service in Industry — MacMillan 1922, page 105) from his experience at the Norton Company, Worcester, with 4,000 workers, says "The most common diseases occurring in factory practice are those of the upper respiratory tract. This," he continues, "is the universal experience of industrial physicians." During 1919 his table of sickness shows *140* respiratory tract cases per 100 employees.

Quinby gives the days lost per employee for respiratory diseases as *1.26*, second only to "General diseases."

Swan (Nation's Health, March 1922) found in the Halle Bros. department store in Cleveland that the upper respiratory diseases caused *39.4%* of the *absence.*

Stevens at the Jordan Marsh Company, Boston, found 42,667 days lost from illness and injury of more than three days' duration, with 11,463 days, *26.8%* lost from upper respiratory disease.

The common cold (upper respiratory infections) is, therefore, the most expensive disease and the greatest single cause of lost time.

II. The digestive tract, the same authorities show, is the next commonest cause of illness and of much lost time.

Clark gives 88 cases per 100 employees during 1919.
Quinby gives 1.11 days lost per employee.
Swan gives 7.4% lost time due to indigestions.
Stevens reports 3,344 days lost; .78 days per employee.

III. Nervous system, functional, is usually the third commonest cause of disabling disease. This is an ill-defined but large group where physical signs are lacking but definite disabling symptoms are felt.

Stevens has wisely said (Mercantile Hygiene — discussion, Nation's Health, July 1922) "There seems at least a very strong presumption that it is not the defect alone that disables a man but what he thinks about the disabling effect of his particular physical ailment."

Physicians have long recognized that digestive disturbances have in most cases an underlying nervous cause. This makes it difficult to clearly distinguish and correctly classify digestive and nervous cases.

For the sake of brevity, it seems wise to refer the student of this subject to the literature for the other causes of lost time and their relative importance.

PHYSICAL RATINGS.

Applicants for industry, less commonly for stores, are rated by physical examination.

Three classes A, B, C, or 1, 2, 3, are fairly well standardized. Class A or 1 — no disability, class B or 2 — temporary or minor disabilities, class C or 3 — serious or permanent disability but able to carry on at least some work.

Two observers, Quinby and Swan, have published findings of lost time by class ratings.

Quinby's Chart. Days lost per Employee for Sickness.

	Male	Female
Class I	4.25	7.07
Class II	4.51	10.31
Class III	5.59	11.12

Swan found that class B employees in a department store lost 12% more time than class A. "In other words," Swan observes, "the employees who need dental work, have uncorrected errors of refraction, are more than 15% over or underweight, or have some other defect that many people would consider unimportant, are sick oftener and therefore absent more, than those who are in good physical condition. The relationship seems to be indirect rather than direct, as the disability does not cause the absence except that it makes him more susceptible to illness.

"The employees who have organic heart lesions, hernias, or other more serious defects, are absent 42% more than those in good physical condition (Class A), and the relationship here is also to a large extent indirect, the disability as a general rule, not being the direct cause of absence."

He found that the absence rate of women was 2½ times that of men; married women 58% more than unmarried.

The absence of seniors (over nineteen) was 41% greater than the juniors. This Swan attributes to medical supervision of school children, nutrition classes, and compulsory correction of minor defects.

Swan agrees with Stevens that much depends on the individual's attitude towards discomfort.

Swan and Emmons (Physical Examinations and Follow-Up, Journal of Industrial Hygiene, Feb. 1924) point out that upper respiratory diseases are almost

universal, while physical examination disclosed but thirty-eight of a group of 1,400 applicants had enlarged or diseased tonsils or other nose and throat defects. Immunity or susceptibility to common cold can seldom be discovered by physical examination.

Nervous disorders form another group of common complaints leading to lost time and inefficiency.

Disturbances of function, then, are discovered by follow-up work rather than a routine physical examination.

Suggestions for Reducing Absence from Sickness.

I. Rate applicants by physical examination.

II. Periodic re-examinations.

III. Carefully examine all returns from illness.

IV. Follow up correcting defects and supervising the physically handicapped.

V. Make mental hygiene a part of the equipment of every personnel executive, and through them teach it to the workers.

VI. Bring dental hygiene within the reach of all workers.

VII. Improve sanitation, including ventilation, heating, lighting and seating.

VIII. *Health Education*, or mental and physical hygiene. Examples: — "Personal cleanliness," "Foot-notes," "Down in the mouth," "Five simple rules for catching cold."

IX. Keep *records* for comparison. This will keep the facts — the problems — constantly in mind.

Conclusion.

Sickness is a universal problem of industry, of commerce and in fact of the community.

The common causes of illness are, first, the common cold, second, indigestion including constipation, and third, nervous, mental or emotional disturbances. Miscellaneous groups cause lesser amounts of lost time.

If we consider these disease groups from the point of view of prevention, we can see that much of this illness might not occur, if the individual had cared for his or her health with the best available knowledge.

The problem, then, is to make the best available knowledge a part of everyone's equipment in life.

The *Home* is the habit forming place.

The *School* is the most effective community organization to teach, and the school girl, the future mother, is the most profitable pupil to teach, and later to apply that health knowledge to her children.

The industrial age is too late to teach and train effectively health habits and health wisdom.

Industry's part is to evaluate its new people; to supplement their knowledge; to give incentives to healthful living and continuous occupation; and to conserve energy, prolonging earning capacity.

HOW TO DRAW UP PUBLIC HEALTH LAWS AND REGULATIONS.

A. Chesley York, Assistant Attorney General for the Commonwealth of Massachusetts.

In the Frame of Government under which the citizen of the United States lives there are three coordinate branches, each acting as a check and a balance upon the others, namely, the Legislative, the Executive, and the Judicial. The duties and powers of these departments are carefully outlined and defined by the Constitution of the United States and by the various Constitutions of the individual States of the Union, each supreme within its own sphere.

To the legislative branch belongs the duty of formulating and enacting laws; to the executive the duty of executing or enforcing the laws; and to the judicial the duty of interpreting the laws and applying them in deciding the many and complex questions which come before the various courts for judicial decision in actual cases.

LEGISLATIVE FUNCTIONS OF GOVERNMENT.

To the legislative branch of our government then belongs the power and duty of enacting, among others, such laws as are deemed necessary to protect the health and safety of the public. Such laws are passed in the exercise of what is known as the "police power" of government, an inherent and vitally essential attribute of any lasting established form of government, and before which many so-called private rights must give way — for truly, as the old maxim expresses it, "*Salus populi est suprema lex*" (the safety of the public is the highest law).

Accordingly, the Congress of the United States and the various legislatures of the several States from time to time have enacted and will continue to enact such laws as they deem necessary in order to safeguard and protect the health, safety and welfare of the citizen. The exercise of this great power and discretion is limited only in that it must conform *first* to the Constitution of the United States and *secondly* to the constitution of the State in question, and the rights of the individual thereby safeguarded and protected.

But there are many matters which are not essentially or particularly statewide or national in their scope, interest or application and, accordingly, the duty and power of caring for such matters as they arise are delegated by the state legislature to the local agencies of government, — the cities and towns; which are but political subdivisions of the State itself, established to aid the State in the administration of the functions of government.

DELEGATED AUTHORITY.

Accordingly, the legislature has delegated to the local boards of health of cities and towns the right to enact certain rules and regulations with certain penalties for violation thereof. In Massachusetts this statute is found in General Laws, chapter 111, section 122:

"The board of health shall examine into all nuisances, sources of filth and causes of sickness within its town, or on board of vessels within the harbor of such town, which may, in its opinion, be injurious to the public health, shall destroy, remove or prevent the same as the case may require, and shall make regulations for the public health and safety relative thereto and to articles capable of containing or conveying infection or contagion or of creating sickness brought into or conveyed from the town or into or from any vessel. Whoever violates any such regulation shall forfeit not more than one hundred dollars."

Section 127 provides:

"The board of health of a city, and the board of health of a town, if authorized by the town, may make and enforce regulations for the public health and safety relative to house drainage and connection with the common sewers, if such a sewer abuts the estate to be drained. Whoever violates any such regulation shall forfeit not more than one hundred dollars."

Such "rules and regulations" of local boards of health are, *if properly enacted,* penal laws, and complaints for violations thereof may be tried in the courts of the Commonwealth and convictions result as in the case of violation of any other law. But if the rule or regulation be improperly drawn or passed it is void — so much waste paper — and cannot, of course, be enforced. The keen and practiced eye of counsel for the defendant will usually be quick to perceive the flaw and a motion for acquittal will be made, which the court must of necessity grant no matter how much the defendant at the bar may by his conduct have imperilled the health or lives of the community and accordingly deserved punishment.

ESSENTIALS TO ENACTMENT OF REGULATIONS.

What, then, are the main essentials to the enactment of a valid board of health regulation? The question is a large one and of necessity covers much ground, and I can but point out here the main essentials.

The regulation must be passed and enacted at a duly called meeting of the board of health. Individual members of the board, as such, have no power to enact a regulation any more than an individual senator or representative has personally

to enact a statute. It is proper to appoint a member or committee of members to draw up a proposed regulation and present it to the board at a later board meeting for approval or disapproval by the board, but the *act of enactment* must be that of the board. Accordingly, even though all the members of the board assent, no regulation can result if the assent was obtained otherwise than by vote *at* a board meeting. Assent obtained by calling at the office or home of each member is not *action* by the *board of health.*

A duly called meeting is essential. Every board of health should upon taking office promptly organize by election of a chairman and a clerk. The chairman should preside at all meetings, but if unavoidably absent a chairman *pro tempore* may be designated by the members to preside, and this fact should be noted on the minutes of the meeting. The clerk should attend all meetings and keep a true, concise and accurate copy of all transactions of the board in a suitable book used solely for the purpose. In his absence a clerk *pro tempore* may act. In a contested court case the clerk's record of proceedings by the board is ofttimes of the utmost importance as evidence.

It is advisable that each board on organization adopt simple standing rules of procedure, in order that its business may be expeditiously handled. If a regular meeting day, place and hour is decided upon, no notice of same need be given in advance to the individual members and any matter may be taken up at such meeting if a quorum be present, although the absent member or members be not notified of contemplated action thereat.

Special Meetings.

But if a *special* meeting of the board be called, no matter can be officially considered unless each member of the board has been notified in advance by the clerk of the time and place of such meeting and the matters then to be considered. No matters can be officially acted upon at a *special* board meeting except those expressly mentioned in the notice calling same. Such notice must be given a reasonable time in advance to each member to enable him to attend if he so desires. If, however, all members are present such notice may be waived. Notices should in all cases be in writing and may be sent by mail or personally delivered at the home or office address of each member. A copy of the form of notice used for every special meeting should be kept by the clerk or secretary with the minutes of the meeting itself.

Unless a quorum of members are present no board meeting, regular or special, can be held. All the members can do is to discuss informally matters and adjourn.

The ordinary rules of parliamentary law should prevail. The chairman should preside in fact as well as in theory. Each matter should be presented by motion, preferably seconded, and but one member should be given the floor in debate thereon at a time. After debate the question should be put to vote and the vote duly recorded by the clerk in the minutes, together with the name of the members moving and seconding.

If a regulation is passed it should be reduced to writing and copied or pasted in the clerk's record book.

Inasmuch as a board of health regulation is a law, by which conduct is regulated, prohibited and punished, it necessarily follows that the same care should be used in its enactment as in the case of any penal law.

Now assuming that a properly called meeting of a board of health is in progress, a proper quorum is present and some member makes a motion, duly seconded, that "the following regulation be adopted as a rule and regulation of this board of health", by what rules of law must the members be guided and governed in casting their respective votes for or against the same? The general requisites of a valid board of health regulation, one legally binding upon all whom it is designed to operate, may be thus briefly summarized.

Summary of Requisites.

1. It must be promulgated by a board of health duly created and legally existing. If there is any invalidity in the election or appointment of its members the board does not legally exist, but until such invalidity is determined it is presumed that it is legally created.

2. It must emanate by virtue of power either expressly or impliedly delegated to the board of health by the State.

Boards of health cannot legislate on matters outside their province or usurp powers vested by law in other boards, such as aldermen, selectmen, etc., but are confined to the matters contained in the statutes hereinbefore quoted.

3. It must relate to a subject within the scope and jurisdiction of the municipality.

Although much of their authority is derived directly through legislative enactments and not through city charters, ordinances or by-laws, nevertheless, generally speaking, boards of health are departments of their respective cities and towns and hence their jurisdiction is confined to the territorial limits thereof.

4. It must be in harmony with the Constitution of the United States, the Constitution of the State, the laws of the United States and the laws of the State.

This is self evident but also most important, and the cases involving this principle are frequent, many and interesting, especially in the present day rapid advance in medical and scientific knowledge, with which legislation attempts to keep pace. Examples which come under this head are: Regulations which make unjust discrimination between citizens, or attempt to regulate interstate commerce, or impair the obligations of contracts, or take property without due process of law, or interfere with the right of personal liberty. Time does not permit me to discuss these very important and interesting topics involving constitutional law.

5. It must be reasonable.

The remedy must not be more drastic than necessary. For example, a regulation which required a dwelling house built next an obnoxious cesspool to be torn down or altered would obviously be unreasonable. A reasonable remedy exists by legislating against the cesspool, not the house, as the former is the real nuisance. But the use of the house might be regulated until the nuisance is removed.

All laws must be reasonable; otherwise they would be oppressive and hence unconstitutional. What is reasonable of course depends upon the particular facts of each case. A regulation reasonable enough when applied to the care of cows and production and handling of milk might be very unreasonable and oppressive when applied to the care of swine or fowl.

So also a thing cannot be made a nuisance by merely declaring it to be one; it must, in the light of human experience, have demonstrated that under given conditions it is or is likely to be one. For example, an acid factory, powder factory, piggery, slaughter house or rendering plant in a congested neighborhood. It must always be remembered that harmless business or amusement cannot be prohibited but can only be regulated. Nor can a practical prohibition be effected under the guise of regulation. The courts will examine substance rather than form.

6. It must be adopted by a legally constituted board of health, legally convened in official session.

We have already considered this requisite.

7. It must be in proper form.

A law is incapable of judicial interpretation or of application unless it is in proper form, clear cut and unambiguous. While, perhaps, a board of health regulation need not be framed in the same manner and form as a statute or ordinance, nevertheless, it will be better so to do. Accordingly it should have a title, an enacting clause, and each article should be numbered consecutively and relate to but one subject. Each article may, of course, be divided into as many sections as desired, appropriately numbered. The time when the regulation is to take effect should be stated as well as the penalty. Unless there be a penalty provided, either by statute or by the regulation itself, the regulation is waste paper and unenforcible.

8. It must be precise, definite and certain in expression and meaning.

Unless the regulation conforms to these tests it cannot be understood by the public or interpreted, applied and enforced by the courts. An ambiguous law is no law at all. Only simple sentences, as short as possible, made up of ordinary words capable of being readily understood by the ordinary person should be used. Avoid the use of foreign or technical terms as far as possible. Involved sentences or repetitions should likewise be avoided. Punctuation should be used as sparingly as possible and parentheses almost never. Every one has doubtless heard of the so-called "semi-colon" law and the trouble a misplaced semi-colon occasioned.

Remember always that the effectiveness of a regulation, as of any law, depends first of all upon its unambiguity and lucidity.

9. It must be passed in the manner prescribed by the legislature, if any.

10. It must be enacted in good faith in the public interest alone, and designed to enable the board of health to perform its true functions as a local governmental organ.

It should be unnecessary to state that no regulation or other law is valid or will stand the test of judicial scrutiny if it is not enacted in good faith and in the interest of the public as a whole. It must impartially act upon all members of the class affected alike. If passed to favor a certain few as distinguished from the public interest it is, as it should be, unconstitutional and void. It is presumed, however, that all acts of public officials are valid and done in good faith unless the contrary be shown. It will not be presumed that public officials have prostituted their offices and trust.

Approval of Regulations.

Now assuming we have a board of health regulation which satisfies all the foregoing requirements, the next step is the approval by some official or tribunal, if any is required, and the notice to the public, that is to say, publication. In Massachusetts General Laws, chapter 111, section 31, provides:

> "Boards of health may make reasonable health regulations which shall be published once in a newspaper if one is published in the town, otherwise in a newspaper published in the county. All regulations made hereunder which provide a penalty for violation thereof shall, before taking effect, be approved by the attorney general. Such publication shall be notice to all persons."

Accordingly, all board of health regulations which provide a penalty must be approved by the Attorney General. In forwarding same to him for such action *two* certified copies should be sent, one of which is retained by him for the files of his department and the other returned with his approval or disapproval in whole or in part noted thereon. Certification should in each instance be made by the clerk of the board. The clerk should also attach his certificate showing when and at what meeting the regulations were adopted.

It is to be noted here that the legislature of this year (1924) has recently amended section 31 as follows (acts 1924, chap. 180):

> "Boards of health may make reasonable health regulations. All regulations made by boards of health under this chapter shall be published once in a newspaper published in the town, and such publication shall be notice to all persons."

Accordingly, when this amendment takes effect *ninety* days from its passage (April first), it will no longer be necessary to obtain the approval of the Attorney General to board of health regulations.

Publication of Regulations.

The last step is publication. The statute, *supra*, provides that regulations made by boards of health shall be published once in a newspaper if one is published in the town, otherwise in a newspaper published in the county. Such publication shall be notice to all persons.

It is generally held that a paper is "published" in a place if it is there composed, set up, and placed in forms, although the press work is done elsewhere. The statute is undoubtedly complied with by publication in a paper prepared and edited expressly for publication in the town and having its principal circulation there, although it is printed elsewhere and sent to the town in bundles for distribution. But there can be no valid "publication" in a paper which has no circulation in a town, although it is entirely printed there.

Now having seen what the requirements are for the enactment of valid board of health regulations, I will give you a few examples of what they ought *not* to be. These are actual instances collected by myself from time to time from sets of regulations forwarded by boards of health of cities and towns in this Commonwealth for official approval by the Attorney General. As you will observe, they are mainly the result of carelessness in enactment or use of language. I have quite a collection now which I term "Gems and germs from Boards of Health". Of the many, I have selected the following few:

1. Any person who owns or occupies property abutting on a public sewer shall be connected with the same under penalty for neglect so to do of a fine not to exceed one hundred dollars.
2. No cow or horse shall deposit any manure matter upon the sidewalks of this town under penalty of a fine for each offense not to exceed twenty dollars.
3. The filling of milk bottles except at the dairy or *crematory* is prohibited.
4. No person shall convey any offal, swill, garbage or refuse matter while under the influence of liquor or while using violent, obscene or sacrilegious language. The penalty for each offense shall be a fine not to exceed twenty dollars.

I was informed that this regulation was passed because the garbage men of a certain city in collecting during the early morning disturbed the slumbers of certain residents of an aristocratic neighborhood by their noise and faulty choice of language, the climax coming when on a certain occasion a garbage man was lifting a well-filled can to his colleague in the cart and the latter lost his hold thereon and upset the can and its nameless contents all over his helper. The language used by the latter was so forcible as to scandalize the community and demands were made on the local board of health for action to prevent a repetition — with the above result. For obvious reasons I was obliged to disapprove this regulation, and on showing it to one of my associates his emotions so overcame him that he hastily inscribed this little poem:

A garbage man of a certain town
Dumped garbage on his colleague's crown,
Who did profanely curse and swear
While raking garbage from his hair.
In the aforesaid town they passed a law —
"No person through the streets shall draw
A garbage cart while drunk, or swear
While moving garbage here and there."

Brother York struck this regulation down
And to the fathers of the town
He said: "If under facts like these
The swill-men can't say what they please
When smitten with a garbage can,
Oh! who would be the garbage man?"

Mention of this subject suggests that I ought to call attention to a statute the existence of which is apparently not known to many boards of health of Massachusetts, namely, St. 1921, c. 358:

"Section 1. Chapter one hundred and eleven of the General Laws is hereby amended by inserting after section thirty-one the following new section: — *Section 31A.* Any person may remove or transport garbage, offal or other offensive substances through the streets; provided that he shall first register with the local board of health, the fee for which registration shall not exceed two dollars; and provided, further, that he shall remove and transport the material herein mentioned in accordance with such reasonable rules and regulations as may be established by the said board.

Section 2. Nothing contained in this act shall be construed to impair the obligation of any existing contract for the removal or transportation of garbage, offal or other offensive substances."

Accordingly, a board of health regulation which requires a permit or license for removing and transporting garbage, offal or other offensive substances through the streets must be disapproved inasmuch as no permit or license can lawfully be required. All that is necessary is that a person so engaged shall *register* with the board of health and pay the prescribed fee. This he could do by mailing a letter. But it is to be observed that the board of health may make reasonable rules and regulations governing the manner and method of such removal and transportation, which must be lived up to or the person violating same is subject to the penalty imposed for such violation.

Overlapping Jurisdiction.

Another point might well be mentioned here. In some instances there may be an overlapping jurisdiction between boards of health and boards of aldermen or councilmen and town meetings. In other words, in a few instances the subject may be controlled by either a board of health regulation or by a city ordinance or town by-law, for example, throwing or depositing refuse in public ways, etc. In such a case it is well to consider which will be the more efficacious, a board of health regulation or an ordinance or by-law. In deciding this question it is to be remembered that, with few exceptions, the utmost penalty that can be affixed for violation of a city ordinance or town by-law is a fine not to exceed *twenty* dollars, while violations of board of health regulations may in this Commonwealth be punished ordinarily by a fine not exceeding *one hundred* dollars. But the instances where such a choice may exist are but comparatively few.

Ordinances and by-laws have their own separate sphere of influence and board of health regulations likewise.

"The mere assertion that a subject relates to the public health does not render the enactment valid. The act must have a more direct relation, as a means to an end, and the end itself must be appropriate and legitimate, before an act can be held to be valid which interferes with the general right of an individual to be free in his person and in his power to contract in relation to his own labor."

So a health regulation which provided that no person should engage in the business of undertaking unless he had been duly licensed as an embalmer, was held unconstitutional and invalid. See Wyeth *v.* Cambridge Board of Health, 200 Mass. 474. The same was decided in New York. See People *v.* Ringe, 125 App. Div. 592.

Said the Massachusetts Supreme Court in the Wyeth case, *supra:*

> "We can see no such connection between requiring all undertakers to be licensed embalmers and the promotion of the public health as to bring the making of this regulation by the board of registration in embalming, or the refusal of a license by the board of health on account of the regulation, within the exercise of the police power by the State. If such a regulation had been made by an act of the legislature with all the strong presumptions of constitutionality which attach to legislative action, we should hesitate to affirm the constitutionality of the act. But action by such a board, under mere general authority to make rules and regulations, does not carry with it these strong presumptions. We consider this action without foundation in law or reason, and in violation of the constitutional rights of our citizens."

The right to enjoy life, liberty and the pursuit of happiness is secured to every one under the Constitution of Massachusetts. This includes the right to pursue any proper vocation to obtain a livelihood. Substantially the same right is secured also by the Constitution of the United States, which does not permit a State to deprive any person of life, liberty or property without due process of law. The nature of this right has been stated and illustrated in many cases.

In the exercise of the police power such kinds of business as require regulation in the interest of the public health, the public safety or the public morals, and perhaps in a strict sense in the interest of the public welfare, may be regulated by the State, and no other interference of the public to the detriment of an individual is permissible. In other words, the American citizen has a lawful right to live and work where he will; to earn his livelihood by any lawful calling; to pursue any livelihood or avocation, and for that purpose to enter into all contracts which may be proper, necessary and essential to his carrying out to a successful conclusion the purposes above mentioned.

No board of health regulation or statute which unduly interferes with these fundamental rights will be upheld by our courts. But it is not easy to state with exactness the nature of the police power and its extent, as applied to conceivable cases. It includes the right to legislate in the interest of the public health, the public safety and the public morals. If the power is to be held within the limits of the field thus defined, the words should be interpreted broadly and liberally. If we are to include in the definition, as many judges have done, the right to legislate for the public welfare, this term should be defined with some strictness so as not to include everything that might be enacted on grounds of mere expediency.

But it is the substance of the matter dealt with by boards of health that is to be regarded rather than forms and words, except so far as those may tend to throw light upon or to explain the real purpose of the board of health in enacting the regulation.

LIMITATIONS ON BOARD OF HEALTH REGULATIONS.

It must be remembered that the statutes which authorize boards of health to enact regulations do not vest such boards with power to make regulations as to *all* matters affecting public health. For example, if the board should be certain that the smoking of cigarettes by boys affects their health injuriously, it would have no power to make a regulation forbidding the smoking of them by boys under a certain age, or the sale of them to such boys. The Legislature might pass such a statute in the broad exercise of police power, but a local board of health has no power to make general regulations as to conduct or practices injurious to health, which if indulged in by many persons affect the health of the public. For example, narcotics, intoxicants, abortives, lifting of heavy burdens by women, height of heels of women's shoes, corsets, dancing, etc.

The statutes in Massachusetts hereinbefore quoted confer upon boards of health jurisdiction to deal with "nuisances, sources of filth and causes of sickness within its city or town". In determining the meaning of the words "causes of sickness" the doctrine "*noscitur a sociis*" is to be applied. It is a little broader term than the two terms that precede it, but it is of the same general character. Primarily it refers to something local, and the board of health is directed "to destroy, remove or prevent the same". There is also another indication of the meaning of these words in the requirement that the board shall order the owner or occupant of private premises to remove any "nuisance, source of filth or cause of sickness found thereon". So a warrant may be obtained directed to an officer or to a member of the local board of health commanding him to destroy, remove or prevent any "nuisance, source of filth or cause of sickness" in reference to which complaint has been made to a magistrate.

The statute likewise gives the local board of health jurisdiction to make regulations relative to articles which are capable of containing or conveying infection or contagion or of creating sickness which are brought into or conveyed from its town or into or from any vessel. This has reference to the bringing into the town or conveying away of articles of such a kind as to be dangerous in reference to their capability of containing or conveying infection or contagion or of creating sickness in connection with their removal from one town to another.

The case of Train *v.* Boston Disinfecting Co., 144 Mass. 523, relative to the disinfecting of rags, furnishes an illustration of what is meant.

In drawing board of health regulations relative to abatement of nuisances or in abating a nuisance care must be taken to keep within constitutional limitations and not to make the "cure worse than the disease", or unnecessarily drastic.

For example, in Durgin *v.* Minot, 203 Mass. 26, it was decided that St. 1894, c. 119, which undertook to confer on the board of health of the city of Boston the arbitrary power to adjudge a private passageway injurious to the public health and then to compel the owner or owners, instead of abating the nuisance in any proper manner, to pave or lay the roadbed as the board of health directed, — was not a reasonable exercise of the police power and hence was unconstitutional and void.

So it was held in Inhabitants of Belmont *v.* New England Brick Co., 190 Mass. 442, that an order of the board of health of a town prohibiting the exercise of the trade or employment of excavating clay for the purpose of manufacturing bricks within the limits of the town except upon the premises "now owned and operated" by a certain brick company, without a written permit from the board of health, not to be granted unless the applicant shall furnish a bond with good and sufficient sureties, conditioned upon the observance of the terms of the permit and upon the filling within a reasonable time to be fixed by the board with materials and in a manner satisfactory to the board of any excavations made by the obligor and

intended to prevent a mosquito nuisance, is unreasonable and void, and cannot be enforced against the brick company, inasmuch as an order from a board of health to abate a certain specified nuisance cannot direct that the nuisance shall be abated in any specified way. The owner of the premises may abate the nuisance in any proper manner.

Note here that the requirement in any regulation that certain things shall be done "to the *satisfaction*" of the inspector or board of health is most improper. No law should ever depend upon the *satisfaction* of any person or body. Accordingly, the proper phrase to use in such a case would be "subject to the approval of" or "in accordance with the requirements of" the board of health.

Now, in conclusion, let me remind you that this is a government of *laws* and not of men. Accordingly, we of the present generation ought always in our official acts as well as in private conduct to seek diligently to preserve the magnificent frame of government established and handed down to us by our forefathers who sacrificed so much to create it, to the end that, in the words of the Immortal Lincoln, "Government of the people, by the people and for the people shall not perish from the earth."

NUTRITION AS A HEALTH PROBLEM.

By Lou Lombard, B.S., Consultant in Nutrition, Massachusetts Department of Public Health.

ONE of the trite sayings with which we are all familiar is the one so widely quoted "Health is Wealth". Unfortunately, as we know, wealth in this country is not estimated in terms of health but in money. Government figures for 1921 show that 48% of the people in the United States have an income below $2,000 and 8% have an income $5,000 or over. Therefore, the percentage of the people who might be called wealthy must be extremely small. Would it be higher if health instead of wealth was the criterion? Probably not, but perhaps by a better appreciation of the factors involved in health, it may be some day.

Nutrition is only *one* of the factors involved in this state of body known as health — but it is an important one. Therefore, it is my purpose to emphasize the relation of nutrition to the health of an individual in the various stages of physical development.

A Good Start in Life.

The pediatricians tell us that the best means of assuring physical health to a child is to give him a good start in life — by first providing proper nourishment for his development during the prenatal period and, second, by maintaining the health of the mother during her period of pregnancy, by suitable diet, adequate rest, sufficient exercise, and general hygienic care.

Experimental work has shown that the proper development of bones and teeth is dependent upon calcium and the vitamins in the diet. Thus the reason for emphasizing during pregnancy a diet sufficiently adequate in milk, the leafy vegetables, fruits, whole grain cereals, and bread and butter.

The First Year.

During the first year of life, which is a period of very great growth, proper food, plenty of sleep, allowance for exercise, abundance of fresh air and sunshine, cleanliness, are the factors which make for the health of the child. The proper food for the greater part of the first year is milk and statistics show that the breast-fed baby fares far better than the bottle-fed baby; therefore the increased tendency on the part of doctors to teach mothers the necessity of breast feeding.

Preschool Age.

From the first year up to school age is a most important one. It is during this period that habits are being formed which are to influence for good or bad the child's state of health in later years. Foods are being gradually introduced into the diet and the best and most effective time to form food habits is at that time. The child is wholly under his mother's care and she can control his periods of rest, the kind of food he gets, his opportunities to play in the fresh air and sunshine, his establishment of good health habits, remedy his physical defects, help him establish habits of good posture. She can help him by these very factors to build a strong body, more capable of resisting the so-called children's diseases which work such havoc and to which all children are exposed sooner or later.

If the foundation of a healthy body is laid during the prenatal period, surely the first story of this body house of health is constructed during the period of pre-school life.

SCHOOL AGE.

When a child goes to school the change from the home environment to the different atmosphere and surroundings met with in school may really be beneficial. School hours serve as rest periods from active play and strenuous exercise. Too much play, even in the open air, as well as too long school days may cause fatigue and lower the resistance to disease. A child needs rest but not too much at one time. A child needs play but not too long continued. A child needs school but not too long hours. Frequent intervals of rest, school and recreation should make up a child's day.

Returns this year from about two-thirds of the school nurses show that in Massachusetts from 5 to 20% of the grade school children are 10% or more underweight according to the Wood-Baldwin height and weight tables. This does not necessarily mean that all those children are undernourished because we know that there are children who are naturally smaller than average, but normal. However, probably 95% of them are undernourished and need attention. This many children have not had a good start.

UNDERWEIGHT CHILDREN.

Dr. Chadwick of the State Sanatorium at Westfield, found in his study of *underweight school children* that 8 to 10% of them were found to have a tuberculous focus of disease which requires special supervision and care.

27% have signs and symptoms of tuberculosis but not enough to justify positive diagnosis; i.e., are suspicious cases.

10 to 20% have other disturbances such as heart, thyroid, teeth, tonsils, adenoids, bone tuberculosis.

The rest of them (about half) have no definite disease but seem to be purely nutritional cases.

The children of the first group; i.e., those having definite symptoms of tuberculosis — usually glandular type — can be taken care of at home, if the home is an intelligent one where cooperation can be obtained. In such a case fresh air, rest and food are three of the most important factors in home treatment.

The routine for rest and sleep would be as follows:

1. Resting and sleeping in the open, or a well ventilated room.
2. Early bed time, sleeping as late in morning as possible.
3. A 30 minute rest before dinner and supper.
4. 2 hours rest after dinner.
5. No strenuous exercise or play.

The food should be of the sort that would be easily digested.

1. A quart of milk forming the basis of the diet.
2. Simple, well-cooked meals, given at regular times.
3. A mid-morning and afternoon lunch of milk.

The children who are reported as suspicious cases need not be kept out of school. They first need to have the physical defects attended to. Fresh air, rest and food are the three important factors to be considered with this group also.

Early bed time — sleeping as late in the morning as possible.
Frequent rest periods during the day, whenever they can be fitted in.
Short rest periods before and after meal times are essential.
The food needs to be kept simple, as for the other group.

With the children who are purely nutritional cases there is usually one factor involved which needs correction. It may be food, it may be lack of sleep, it may

be lack of fresh air, it may be uncleanliness, it may be poor posture, etc., or it may be a combination. From experience it seems with school children that the lack of adequate rest and sleep is often the greatest single factor. For the average child this can be remedied but for the child who comes from a home which is overcrowded, it is a difficult thing to remedy. One might as well tell the blind to see as tell a child to rest more who lives in such crowded quarters, that it is necessary to sleep with one or two others and where there is no opportunity to find a quiet spot during the day to rest. Where are those children to rest? Or where is the child in the country, who leaves home at 7.30 and has to be away all day until 4 in the afternoon to get rest? The schools, I think, will have to find a place in the future. In most of the schools today, especially country schools, there isn't a nook or a cranny where it would be possible for children to rest — but in the new buildings there ought to be provision made. Many schools sell milk which helps to provide the undernourished child with the necessary amount of milk each day. This and the hot noon lunches have been found to be good educational practices.

Candy Selling in the Schools.

I believe a further step in this educational practice would be the "doing away with" the sale of candy in the schools. Some school systems in the State have done this feeling that it was a bad educational practice. Some schools sell only milk chocolate and a certain amount. Some schools sell candy only at noon time. Some schools sell candy only at recess time. Some schools (only a few in this state fortunately) have it for sale any time during the day.

In asking throughout the State where candy was sold and the reasons for sale, I got the answer in almost every case "In order to make money for some special purpose". These were some of the special purposes:

1. Providing tables and chairs for use in second grade rooms.
2. Playground apparatus.
3. Victrola.
4. Money for graduation.
5. Trip to Washington.
6. A medicine cabinet.
7. To provide milk to the children who couldn't afford to buy it.
8. School feels it might as well have the profit otherwise made by the stores.

All these are desirable, but is there no other better way of getting these?

In one school there is a dental clinic in one part of the building and a flourishing candy business in the other. Isn't this a senseless combination?

Building up Resistance.

Between the ages of 5 and 15 the resistance to infection from tuberculosis is high and it is during this period that every effort should be made to build up, if it has not already been done, a strong body by proper food, sufficient sleep, supervised recreation in the open air so that the tubercle bacilli (with which most of us are infected) will be buried so deep that the ordinary stress of later life may not by lowering resistance, release them.

Adolescence.

The period of adolescence is one where all the factors of nutrition play such an important part. (This is usually a period of very great activity on the part of both boys and girls). There is usually rapid gain in skeletal development. Sufficient food of the right kind is most necessary and plenty of rest. In many of the physical training departments of the larger high schools rest periods are given to those who definitely need them, rather than the strenuous activity of the gymnasium class. Efforts are being made through the high school lunch rooms and cafeterias to provide the right kind of food and to teach the necessity for it.

Improper Living Cause of Absenteeism.

Everyone at some time or other finds himself or herself at the time when it is necessary to do his share of the world's work and it is usually then for the first time one appreciates the full value of health. Miss Comstock in her discussion of her work as nutrition adviser in an industrial plant said that in the Eastman Kodak Plant they found that 70–80% of the causes of absenteeism were due to improper living.

34% of the 3,200 people examined were underweight.

21%, overweight.

In Conrad's department store the nurse noticed that in October of last year the number of employees coming for treatment jumped up about 100%. Practically all of these cases were colds. After investigation she found that about half of the girls were coming without breakfast — or were going to dances and not getting enough sleep, etc. Of course, both these factors lowered the resistance of the girls to the cold germs which got the upper hand.

Around Christmas time the department store nurses tell us the number of girls having sick headaches and fainting spells increases, due perhaps to the additional nervous strain of the crowds of people and also to improper food and health habits.

Strain of Middle Life.

In middle life we find frequent occurrences of breakdowns due to a long-standing difficulty and with lowered resistance which often comes from unwise living the trouble occurs.

Up to this point emphasis has been, to a large extent, on the phase of nutrition manifested in underweight and it is during middle life that many of the difficulties due to overweight occur. An excess of fatty tissue is quite as objectionable as too little. It taxes the heart and the other vital organs and causes serious trouble. Measured feeding and proper exercise are most essential during this time.

In looking back over the seven ages of man which make up the span of life we find that at all times in life are the factors of nutrition involved in the development of good health of an individual. From one end of life to the other sleep, food, exercise, rest, fresh air, sunshine, and good posture have a prominent part to play.

INFANT MORTALITY IN A CITY IN MASSACHUSETTS.

By Angeline D. Hamblen, Ph.D., Statistician Massachusetts Department of Public Health.

THE city selected for this study has a population of about 120,000, 34% of whom were foreign born. The foreign born population is chiefly composed of Canadians, Portuguese, Poles, Russians and Italians. The infant mortality rate in this city has always been high, and is still considerably above the rate for the State notwithstanding the fact that in 1923, the rate had a fall of almost 40 points and for the first time was below 100. Although in the last six years there has been a great decline in the mortality rate of infants under one year, this decline has only slightly affected the mortality rate of infants under one month. To aid in the determination of whether or not this mortality among infants under one month could be decreased, a detailed statistical study was made of the 151 deaths that occurred in this group in 1923.

About 50% of the mothers included in this study were born in the United States. About 65% of the total female population was born in the United States. It is evident therefore that a larger proportion of the mothers were foreign born than could be anticipated for the composition of the population.

About two-thirds of the foreign born mothers and two-fifths of the native born mothers had no prenatal care. Two foreign born mothers and ten native born mothers had prenatal care throughout pregnancy. Only 17 or 42% of the primiparæ had pelvic measurements taken.

40 mothers were primiparæ.

All the mothers recovered but one who died from broncho pneumonia.

With a few exceptions the deaths were among the children of millworkers, machinists, carpenters, teamsters, plumbers, and laborers.

In this district the amount paid to a full time unskilled millworker varies from $22.00 to $27.50 a week. The piece workers and those "higher up" receive more. The rent paid for the better houses varies from $11 to $14 a week, for the poorer houses from $4 to $6. The rent for the poorest is about $1 a room a week.

Twenty-seven babies died in a hospital but only one had an autopsy.

PREMATURITY.

In 43 or 28% of the deaths, the only cause of death given was prematurity. Among the deaths due to other causes 19 of the infants were premature. In the group of 43, 4 were 5 months premature, 17 were 6 months premature, 11 were 7 months premature, 5 were 8 months premature, and in 6 cases the extent of prematurity was unknown.

23 deaths were among males and 20 among females.

Of the 43 deaths due only to prematurity, 63% occurred within 24 hours of birth.

Included in the 43 were 9 which were twins, representing 6 pregnancies.

About one-seventh of the mothers worked in the mills during pregnancy.

9 mothers were primiparæ (2 mothers had twins).

25 mothers had no prenatal care (2 cases of twin pregnancies).

Causes of Prematurity.

Unknown, 13; Multiple pregnancy, 8; Accidental injuries, 6; Poor condition of mother, 3; Indigestion, 2; Nephritis, 2; Overwork, 2; Emotional upset, 1; Pernicious vomiting, 1; Placenta previa, 1; Anemia, 1; Albuminuria, 1; Diabetes, 1; Food poisoning, 1; Total, 43.

HEMORRHAGE OF THE CHILD.

The next most frequent cause of death was hemorrhage which was the primary cause of death in 21 instances. All the parents were healthy except one mother who was "never well". 14 deaths were due to cerebral hemorrhage. 10 were males and 4 were females.

Method of Delivery.

Breech extraction, 1; Version, 2; Forceps, 4; Normal, 7; Total, 14.

Five of the normal deliveries were following long slow labors. In one case the position of the child was O. L. A. One baby was found dead 7 days after birth. It was jaundiced and poorly developed with the right side of the face cyanosed. Three children developed convulsions. The length of life varied from 12 minutes to 16 days.

There were 4 deaths due to hemorrhagic disease of the newborn — all of which were among the children of multiparæ. One mother had prenatal care throughout pregnancy, and the baby was delivered spontaneously at the 8th month. Hemorrhage from all the mucous membranes began ten hours after birth. Horse serum was injected with no effect, and the baby died in two days.

Another baby was stated to be normal at birth, but on the third day it started to bleed from the mouth. When the doctor arrived the baby was cyanotic, grew steadily worse, and died shortly.

One full term baby lived two days with anal hemorrhage.

One baby was delivered by version. The mother, with marginal placenta previa, had no prenatal care. She went to the hospital as an emergency measure. The skin of the baby showed hemorrhagic spots. It had difficulty in breathing and swallowing, and had hemorrhages over the abdomen and scrotum. Horse serum was given but the baby died in one day.

There was one case of intestinal hemorrhage. The baby was delivered spontaneously, and was unusually lively. Ten days later it began oozing from the naval and had a profuse bloody discharge from the bowels which increased and did not react to treatment. The baby died the same day.

There was one case of umbilical hemorrhage that was probably homicidal. The baby was found dead on a door step. The umbilical cord had not been tied.

There was one case of tongue hemorrhage. A doctor operated for tongue tie, but when bleeding occurred another doctor was called who decided the bleeding was from the stomach and did not suture the cut. The cut was not sutured till the following day in the evening. Bleeding started again after suturing and the baby died from hemorrhage.

CONGENITAL HEART DISEASE.

Congenital heart disease was the cause of death of 18 babies. 10 were full term, 3 were probably full term, 3 were premature, and 2 were probably premature.

In every case the race stock of the mother and father was the same. In other congenital malformations the race stock of the mother and father were different in 50% of the cases.

Three mothers were primiparæ.

Eleven had no prenatal care.

Five mothers worked in the mills during pregnancy.

One mother was rachitic, one (the mother of twins) had not been well for two years, one had heart trouble, one was never well after her first pregnancy, one had an emotional upset and one was very obese. Ten mothers were well.

Thirteen deliveries were spontaneous, two by forceps, two by version, and one by Cæsarean section.

There were nine boys and nine girls.

The length of life varied from a few minutes to twenty-one days.

DIFFICULT DELIVERY.

There were 12 deaths apparently due solely to difficult delivery, as they were full-term babies with no evident abnormality.

6 were males and 6 were females.

9 mothers were born in the United States.

2 mothers had no prenatal care and 2 had prenatal care throughout pregnancy.

7 were primiparæ one of whom had been married 14 years and another had been married 8 years with no pregnancy.

11 mothers were attended by a physician. 1 was given prenatal care all through pregnancy by a physician but was attended at delivery by a midwife first and later by the physician also. The baby was delivered by low forceps. It had a contusion and died in five hours.

1 delivery was by breech extraction, 3 were spontaneous, and 8 by forceps. The spontaneous deliveries were following long labors.

6 infants lived from 5 minutes to 6 hours. The others died within 5 days.

CONGENITAL MALFORMATIONS.

There were twelve deaths due to congenital malformations. In seven cases the malformation was of the head. There was one case of intestinal obstruction, one of exstrophy of intestines and one of imperforate anus. There were two cases of spina bifida. In two cases besides having a malformation of the head the child had spina bifida.

3 were males and 9 were females.

In eight cases the mother was born in the United States. In one case the mother was born in Canada. In one case the mother was born in Portugal. In two cases the birthplace of the mother was unknown.

In six cases the race stock of the mother and father were different.

In every case the parents were healthy, but in one case the father "drank".

Nine mothers were multiparæ.

Nine babies were full term.

ASPHYXIA NEONATORUM.

There were six deaths due to asphyxia. All occurred within two hours of birth.

Two were males and four were females.

One delivery was by breech extraction and one by version (the mother had a placenta previa). In one case instruments were used for the shoulders and a cleidotomy was done. In one case low forceps were used. The baby had a short umbilical cord tight about its neck. Two deliveries were spontaneous. In one of these the labor was very long. In the other the woman was attended by a midwife. She had lost a baby before from asphyxia.

ATELECTASIS.

There were four deaths due to atelectasis. Three were males and one was a female.

Two mothers were primiparæ.

Three deliveries were spontaneous and one by low forceps.

One baby never breathed. One was reported all right at birth but was found dead in its crib the next day and an autopsy showed it had a tracheal obstruction due to an accumulation of mucus. One baby seemed all right at birth but three days later it had convulsions and died. One lung was found to be expanded. This mother had lost another child several years before from atelectasis. One baby was reported all right at birth but died two days later.

One baby lived fifteen minutes. The others lived one, two and three days.

MARASMUS.

There were three deaths due to marasmus.

All were males.

All the mothers were foreign born.

None had prenatal care.

Two were delivered by midwives and the babies were seen only once by the doctor.

In one case the doctor thinks the mother overworked in the mill. One mother was frail.

All were poor.

The length of life varied from one to twenty-six days.

CONGENITAL DEBILITY.

There were six deaths due to congenital debility.

Three were males.

Four mothers were foreign born.

Four mothers had no prenatal care, one had prenatal care for two weeks, and one had prenatal care for one month.

One was delivered by a midwife.

One mother was anemic, one had pneumonia and one was very obese. In one case the mother was not normal mentally and the father was alcoholic.

The length of life varied from twelve hours to twenty-one days.

RESPIRATORY DISEASES.

There were three deaths due to broncho-pneumonia. All were children of foreign born mothers.

Two babies were first seen by the doctor just before they died. One had a cold and the doctor was called a few days before it died.

There was one death due to acute bronchitis. The mother was foreign born. The home conditions were very poor as regards cleanliness. The baby was healthy at birth and lived twenty-eight days.

There was one death due to pulmonary congestion which was thought to have been caused by grippe of the mother. The baby died on the second day.

ICTERUS NEONATORUM.

There were four cases of icterus neonatorum. Three were males and one was a female. They lived one day, three days, four days, and nine days. There was no history of hemorrhage.

In three cases the homes were crowded and dirty.

In two cases the mother was attended by a midwife, and in two cases the baby was born before the doctor arrived.

One mother was anemic but the other mothers were healthy. One mother had had an attack of cholecystitis several years before. There was no other history of kidney or liver trouble.

GASTRO-INTESTINAL DISEASES.

There were two deaths due to gastro-enteritis, one to convulsions from improper feeding, one to cholera infantum, one to stomatitis, and one to ileo-colitis.

Four mothers were born in the United States but only two were the second generation in this country.

Two were delivered by a midwife.

Three babies were breast fed.

One baby, six months premature, was delivered in a hospital and taken away against advice. It steadily lost ground and died in twenty-five days. One baby, fifteen days old, was fed grapes and was moribund when seen by the doctor. One baby was weak from birth. It was breast fed but could not retain its food. The doctor thinks that lack of intelligent care caused its death. One baby was breast fed but the milk did not agree with it and it died on the seventh day. One baby was bottle fed, and died at twenty-four days from cholera infantum. One baby had an imperforate anus and could not retain its food. This baby had a recto-vaginal fistula and the doctor expected to operate later. It lived twenty-eight days.

MISCELLANEOUS.

One death was due to gangrene of the lower extremities. There was a question of syphilis. At birth a black discoloration was noticed from the toes to the lower half of the tibia and fibula. There was an offensive odor from the lesions. The skin over certain parts of the body was raw. The baby was admitted to the hospital a few hours after birth, and died in three days.

Pemphigus caused one death. A vesicular eruption appeared on the face and body when the baby was a week old. Two days later the baby was worse and died two days after that. There was no other case in the hospital at the time.

One death at two days was due to convulsions which the mother thinks were caused by painting that was being done in the house.

There was one case of streptococcus meningitis. The mother had a mild sepsis following delivery. The home was dirty. The baby would not nurse. Its abdomen was hard and swollen for two days before it was seen by the doctor. The spinal fluid was green. It died in fifteen days.

There were three deaths due to toxemia of the mother. All had prenatal care for several months. One mother had a blood pressure of 180 which later rose to 210. Her urine showed albumen and casts. She had headaches and œdema, and saw "specks". The symptoms of toxemia entirely disappeared and she had a normal delivery. She had no convulsions. The baby was born before the arrival of the doctor. Everything was normal until the fourth day when it made convulsive movements and died a few hours later. In another case the mother had had kidney trouble. She had no symptoms of toxemia before delivery, but had eclampsia during birth. The baby had uremic toxemia of the new born and died in five days. In the other case the mother had chronic nephritis. Her urine showed albumen and casts and she had œdema. She also had a placenta previa. The baby was delivered by low forceps and lived three days.

UNKNOWN.

The cause of death was unknown in four cases.

Two were delivered by a midwife, and two were not attended at delivery.

Three were viewed by the medical examiner.

In one case although attended by a midwife the mother called a doctor as the baby seemed ill, but it died in fifteen minutes. The baby was seven months premature and the mother had had symptoms of toxemia during pregnancy.

In the other case delivered by a midwife a doctor was called but the baby died soon after it was seen.

One baby, an eight months premature, died apparently from neglect at delivery. It was dead when the doctor arrived.

In the other case the family had moved and the doctor had lost his records, so no information could be obtained.

Certain Observations.

Some people seem content that the mortality rate of infants under one month should continue practically constant year after year. They assume that these deaths are beyond control but a study of the records of these babies shows that many of the deaths might have been prevented. This study emphasizes the need of urging all mothers (native born as well as foreign born) to have prenatal care by a physician and the importance of keeping in close communication with him both before and after delivery. It also emphasizes the need of complete medical records of maternity and infant cases with special attention to diagnoses and causes of death.

Deaths under 1 Year per 1,000 Live Births by Cause.

	1916.	**1917.**	**1918.**	**1919.**	**1920.**	**1921.**	**1922.**
Epidemic	12.2	15.0	19.2	12.0	7.6	8.1	13.3
Respiratory . . .	38.2	27.3	30.4	24.8	22.9	18.1	23.8
Gastro Intestinal . .	63.1	62.8	69.6	39.4	44.7	32.9	36.2
Early Infancy . .	33.6	26.8	34.8	23.0	27.7	29.4	29.1
Malformations . .	5.4	7.6	8.2	8.2	7.4	7.8	6.8
All others	21.6	18.9	18.1	12.3	19.5	18.1	18.1

Deaths under 1 Month per 1,000 Live Births by Cause.

	1916.	**1917.**	**1918.**	**1919.**	**1920.**	**1921.**	**1922.**
Epidemic	.3	.8	1.1	.3	0	.3	0
Respiratory . . .	4.6	1.8	1.4	1.5	1.4	.5	1.4
Gastro Intestinal . .	7.3	6.6	5.5	5.5	4.2	3.0	2.8
Early Infancy . .	27.3	22.6	29.6	18.7	24.9	24.5	26.3
Malformations . .	4.9	6.6	6.9	7.3	6.2	5.7	5.1
All Others	7.0	7.9	8.8	5.5	10.5	8.4	5.4

A TEN-YEAR TUBERCULOSIS PROGRAM.

THE outlook of the early tubercular patient is far from dubious. The big problem is to discover the disease in its early stages when treatment is still efficacious.

The Massachusetts Department of Public Health has entered on a program of pioneer work along these lines. The Legislature is behind the Department with funds; Boards of Health, physicians and nurses are cooperating in the experiment.

The plan is based on the fact that the juvenile type of tuberculosis, found usually between 5–12 years of age, is essentially a disease of the lymphatic glands and is curable. By the time the disease has progressed to the point where it can be demonstrated in the lungs of an adult, the outlook is no longer favorable. The childhood type of disease can be controlled by careful regulation of the living conditions of the child — plenty of fresh air and sunshine, ample hours of sleep and rest periods, and thorough building up of the child's nutrition.

The first problem then is to find the tubercular child before the disease has taken too strong a hold. Studies made at Westfield Sanatorium show that tubercular children develop for the most part from the undernourished group. 8–10% of underweight children show definite signs of glandular tuberculosis. In order to find this group the State is undertaking to conduct a special examination for tuberculosis in the following groups:

1. Children 10% or more below the accepted standard of height and weight, for age.
2. Contact cases or those exposed to tuberculosis in the home.
3. Children in sub-normal physical condition including those who are often absent from school on account of illness; those with frequent colds; those who seem listless and tired, nervous and fretful.

From experiments which have been carried on, it is estimated that about 110,000 children will come under one of the three above classifications and that of these about 8% will receive a positive diagnosis of glandular tuberculosis. In other words, it is estimated that there are 9,000 children in Massachusetts in the beginning stages of tuberculosis. If they can be found at this time and placed under treatment 9/10 of the would-be sanatorium cases will be sufficiently cured to live careful, normal adult lives.

The State has planned a 10-year schedule to carry out this program of prevention. The first year, five full-time physicians, 8 nurses, and 4 nutrition workers will be employed to carry on the examinations. One of these physicians will act as general supervisor of the program and one will be added to each of the 4 Sanatoria to carry on the school clinic work. The nutrition workers will instruct the mothers regarding the nutrition of border-line cases.

THE COMMONHEALTH.

QUARTERLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
FRANCES KLEIN, S.B., ASSOCIATE EDITOR.
Room 546, State House, Boston, Mass.

New England Health Institute. — The second New England Health Institute was held in Boston, May 5–10, 1924. The Institute was decidedly a success, not only in regard to the number attending, but also in the enthusiasm with which the lectures were received. A great deal of credit is due the Section Chairmen and the Faculty who contributed their time and effort to the Institute.

1,280 persons registered at the Institute. These represented the following professions: Nurses, 420; Students, 249; Executives, health officers, superintendents, etc., 131; Physicians, 109; Teachers, Professors, etc., 78; Members of Health Ass'ns, physical directors, and others interested in health, 78; Social Service Workers, 59; Dentists, 51; Stay-at-homes, wives, etc., 29; Clerical Workers, 21; Nutrition Workers, 14; Dietitionists, 12; Dental Hygienists, 8; Bacteriologists, 6; Press, 6; Sanitary Engineers, 5; Chemists, 4.

The next New England Health Institute will be held in Maine with Dr. Clarence F. Kendall as Director. Details as to time and place will be announced later.

Course in School Nursing. — The problem of getting competent school nurses is one of considerable importance anywhere but of extreme importance in Massachusetts with its mandatory school nurse law. Many if not most of these nurses are working under lay supervision; they may be the only active public health force in the community.

While it is undoubtedly true that the best trained and most resourceful nurses ought to be working in the country, yet it is far from being the rule. The question is, how can we get such school nurses ready-made, or how can we furnish them with training even after they have entered on their duties without adequate preparation.

For two years past there has been a course in school nursing during the summer session of the State Normal School at Hyannis, under the able supervision of Miss Jessie M. C. Hume. This year the course will be taken over by the Division of Hygiene of the Massachusetts Department of Public Health working in conjunction with the State Department of Education. An attempt will be made to give in the space of five weeks a reasonably thorough grounding in the essentials of the school nurse's job. It is recognized perfectly, of course, that a nurse untrained in public health work, can not be turned into a fully-trained public health official in the space of five weeks. She can, however, be given the technique, so to speak, of the job and some of its connotations. She will profit in proportion to to the equipment she brings to the course. Under any circumstances she ought to be a better school nurse than before.

An analysis of results obtained so far as they can be estimated will be published in a later issue of The Commonhealth.

Two-year Program for Practical Laboratory Training. — Attention is called to the two-year program in laboratory training offered by Simmons College, Boston. The training leads to assistant laboratory work chiefly in hospitals. The program gives training in the routine procedures of health and hospital laboratories.

The subjects of the first year give a basic preparation for the laboratory training for the second year which is offered through the cooperation of the State Department of Health and other laboratories.

The subjects scheduled are as follows:

First Year: General Biology, Physiology of Nutrition, Bacteriology, General Chemistry, English, Language *or* History, Hygiene, Physical Training.

Second Year: Students are assigned to State bacteriological, Wassermann, and serum and vaccine laboratories for practice in health laboratory work.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of January, February and March 1924, samples were collected in 110 cities and towns.

There were 1,164 samples of milk examined, of which 218 were below standard, 21 samples had the cream removed, and 36 samples contained added water.

There were 527 samples of food examined, of which 124 were adulterated. These consisted of 5 samples of butter which were high in moisture; 58 samples of eggs, 52 samples of which were cold storage eggs which were not properly labeled, 5 samples of cold storage eggs which contained a few decomposed eggs, and 1 sample sold as fresh eggs, but were not fresh; 24 samples of sausage, 8 of which contained starch in excess of 2 per cent, 4 contained sodium sulphite, 11 were colored, and 1 sample was decomposed; 7 samples of kiszki sausage which contained more than 2% and less than 20% cereal; 2 samples of compound lard, the containers of which were not properly labeled; 1 sample of malted milk which was rancid; 4 samples of olive oil which contained cottonseed oil; 5 samples of vinegar which were low in acid; 9 samples of flavoring extracts, 4 samples of which contained coumarin, and 5 samples were not properly labeled; 3 samples of maple sugar which contained cane sugar; 1 sample of kidneys which was decomposed; and 5 samples of canned goods which contained worms.

There were 216 samples of drugs examined, of which 49 were adulterated. These consisted of 1 sample of camphorated oil, 18 samples of spirit of nitrous ether, 4 samples of mercury ointment, 2 samples of spirit of peppermint, 3 samples of spirit of camphor, and 1 sample of iodine, all of which were deficient in the active ingredient; 12 samples of tincture of jamaica ginger which were not double strength; and 3 samples of hamamelis water, 1 sample of spirit of peppermint, 2 samples of spirit of camphor, and 2 samples of tincture of iodine, all of which contained diethylphthalate.

The police departments submitted 1,730 samples of liquor for examination, 1,581 of which were above 2.75% in alcohol. The police departments also submitted 15 samples of poisons for examination, 7 of which were morphine, 1 morphine derivative, 1 cocaine, 1 opium, 2 heroin, and 3 samples examined for poison with negative results.

There were 45 hearings held, and 18 warnings issued, pertaining to violations of the Food and Drug laws.

Thirty-six samples of coal were examined under the coal law, 14 samples conforming to the law, and 22 samples contained an unreasonable amount of impurities.

There were 73 convictions for violations of the law, $1,615 in fines being imposed.

Samuel P. Lapham of Norwood; Joseph Robertshaw of North Tiverton, R. I.; Frank Tarvis and Antone Sousa of Somerset; James Manuell, Joseph Franz, Frank Denkwicz, Max Resnik, and William Rozman, all of Springfield; Frank Tupper of Andover, Bento Mark of Fall River; and Joseph Mitchell of West Acton, were all convicted for violations of the milk laws.

Isaac Bassinov, Max Jacobson, Joseph Mindick, and J. Heslor & Co. Inc., all of Worcester; Frank Kirschner of Haverhill; Ferdinand Leuchtenberger and John Wojtaszek of Adams; Abraham Weiner of Mattapan; James Sparages of Cambridge; Max Rabinovitz and Isaac Widlansky, each on 2 counts, both of Springfield; Phillip Shnider on 2 cases, and Michael Bucuvalas, both of Lowell; Julius Grey on 2 counts, and Colonial Provision Company, Inc., both of Boston; and Paul M. Yocas of Stoughton, were all convicted for violations of the food laws. Isaac Bassinov, Max Jacobson, and Joseph Mindick, all of Worcester; and Colonial Provision Company, Inc. of Boston, all appealed their cases.

Assir N. Fisch of Norwood, and Peter F. McHugh of Mattapan, were con-

victed for violations of the drug laws. Assir N. Fisch of Norwood appealed his case.

The Ginter Company of Springfield was convicted for misbranding eggs.

Isadore Tillman of Springfield, and Albany Cash Market, Inc. of Pittsfield, were convicted for false advertising of fresh eggs.

Phillip Argento, Frank Chirichiallo, Vincent Derrico, Donald Duluzio, Antonio Ferraro, John Gallo, Angelo Guerra, Domenico Masiello, Joseph Pasquarello, John Pistaro, Frank Sciluci, and Michael Terlizei, all of Worcester; Jacob Cohen, 2 cases, of Quincy; Morris Katz, Morris Marshalman, and William Weiner, all of Malden; Benjamin Katz, 2 cases, of Newburyport; Michael Bucuvales, John N. Fratas, Christos Ganellas, Peter Naberezny, Peter Patsovakos, Peter Rodopolous, and Walter Wisnoski, all of Lowell; James Saffie, Ralph Cocorcochino, Carlo Fiacchino, Angelo Pinmatto, John Sakorcz, James Stanin, and Abraham Zaft, all of Lawrence, were all convicted for violations of the cold storage laws. Phillip Argento, Vincent Derrico, and Michael Terlizei, all of Worcester; William Weiner of Malden; and Benjamin Katz, on 2 cases, of Newburyport, all appealed their cases.

Edwin L. Havens, 2 cases, of New Braintree; Joseph Gauvin of Methuen; and Ferdinand Leuchtenberger of Adams, were all convicted for violations of the slaughtering laws.

Morris Goldstein of Haverhill was convicted for violation of the mattress law.

Fisher Churchill Company of Dedham was convicted for violation of the coal law.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 5 samples, by Joseph Mitchell of West Acton; and 2 samples, by Everett Cummings of Woburn.

Butter which was high in moisture was obtained as follows: 1 sample each, from Louis Rutstein of Chelsea; Isaac Widlansky and Max Rabinovitz of Springfield; and 2 samples from Carl Gold of Springfield.

One sample of kidneys which was decomposed was obtained from Paul M. Yocas of Stoughton.

Sausage which contained starch in excess of two per cent was obtained as follows: 1 sample each, from Alexander S. Kotarski of Salem; and Greylock Company of Adams.

Sausage which contained coloring matter was obtained as follows: 3 samples from Frank Kirschner of Haverhill; and 1 sample, from Meyer Kesseler of Somerville.

Sausage or hamburg steak which contained sodium sulphite was obtained as follows: 1 sample each, from Louis & Joseph Mindick, Max Jacobson & Sons, and Isaac Bassinov, all of Worcester; and The Mohican Company of Springfield.

Kiszki sausage which contained more than 2% and less than 20% cereal was obtained as follows: 1 sample each, from Greylock Sausage Company of Adams; Paul P. Trzepacz of Pittsfield; Reiss of Worcester; and North Shore Sausage & Provision Company of Salem.

Two samples of compound lard, the containers of which were not properly labeled, were obtained from Brockelman Brothers of Fitchburg.

Vinegar which was low in acid was obtained as follows: 2 samples, from Red Cross Products Company of Fall River; and 1 sample each, from E. V. Fitts Company of Quincy, and Kormon Water Company of Fall River.

One sample of misbranded Virgin Oil was obtained from George Kokenakes of Boston.

Flavoring extracts which contained coumarin were obtained as follows: 1 sample each, from Eastern Chemical Company of South Boston; New England Drug Company of Springfield; and American Proprietary Company, Inc. of Malden.

One sample of flavoring extract which was improperly labeled was obtained from Eastern Sales & Supply Company of Springfield.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of December 1923: 390,090 dozens of case eggs, 155,925 pounds of broken out eggs, 1,115,438 pounds of butter, 4,263,116 pounds of poultry, 6,928,099 pounds of fresh meat and fresh meat products, and 1,529,930 pounds of fresh food fish.

There was on hand January 1, 1924: 4,986,150 dozens of case eggs, 1,347,987 pounds of broken out eggs, 5,814,678 pounds of butter, 7,077,583 pounds of poultry, 13,055,573 pounds of fresh meat and fresh meat products, and 9,402,315 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of January, 1924; 374,610 dozens of case eggs, 150,150 pounds of broken out eggs, 776,866 pounds of butter, 2,654,633 pounds of poultry, 5,396,321 pounds of fresh meat and fresh meat products, and 1,517,470 pounds of fresh food fish.

There was on hand February 1, 1924: 2,053,950 dozens of case eggs, 1,194,842 pounds of broken out eggs, 2,927,316 pounds of butter, 8,478,710 pounds of poultry, 14,605,963 pounds of fresh meat and fresh meat products, and 6,280,273 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of February, 1924: 253,590 dozens of case eggs, 118,677 pounds of broken out eggs, 755,419 pounds of butter, 1,791,518 pounds of poultry, 3,339,377 pounds of fresh meat and fresh meat products, and 1,935,752 pounds of fresh food fish.

There was on hand March 1, 199,350 dozens of case eggs, 1,044,434 pounds of broken out eggs, 1,824,591 pounds of butter, 8,775,610 pounds of poultry, 15,697,232 pounds of fresh meat and fresh meat products, and 4,360,131 pounds of fresh food fish.

There were eight confiscations, consisting of 750 pounds of decomposed canned, mixed eggs, 160 pounds of decomposed chickens, 326 pounds of decomposed turkeys, 70 pounds of dried out deer legs, 35 pounds of dried out veal, and 15 cans of decomposed blueberries.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, EUGENE R. KELLEY, M.D.

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EUGENE R. KELLEY, M.D,, Commissioner

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THE BROADENING FIELD OF PREVENTIVE MEDICINE.

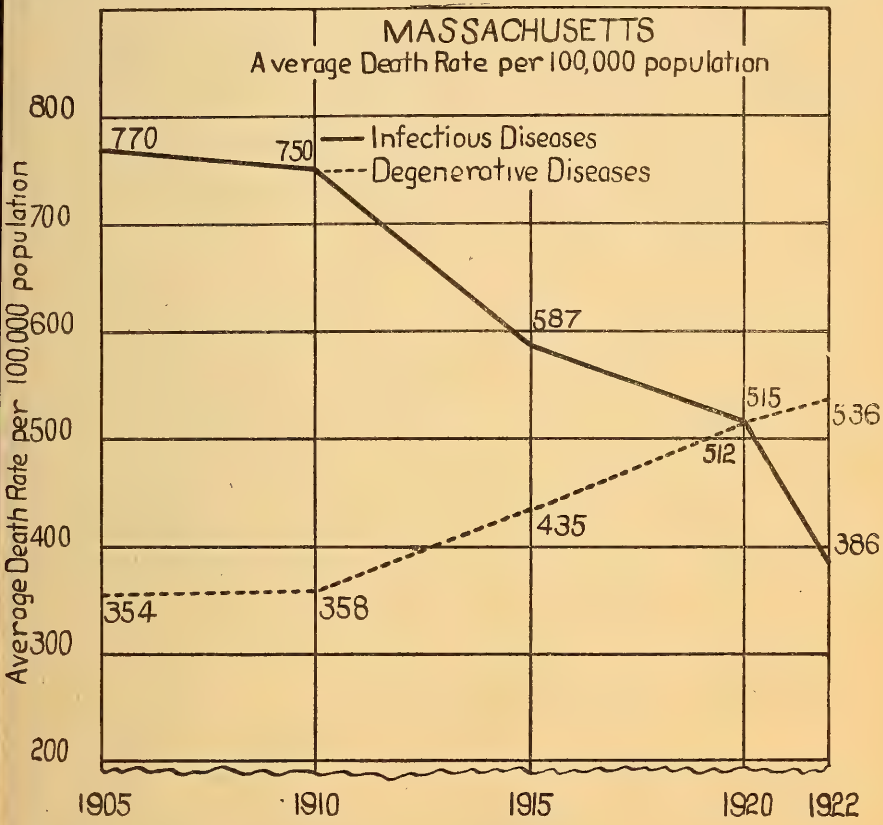
EUGENE R. KELLEY, M.D., COMMISSIONER, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

WHEN one sees the term "preventive medicine" one almost invariably thinks of the methods used to control the communicable diseases. This is because, in the past, the public health authorities felt the most crying need and the promise of the most immediate results in this field. First the efforts were directed largely towards modifying the environment, as the treatment of water and sewage to control typhoid; supervision and pasteurization of milk; screening and mosquito control for malaria, etc.; more recently artificial immunization of the community has become more prominent as in diphtheria, and as promises to be true in scarlet fever, though small pox vaccination was a forerunner of any organized public health movement. But just at present the field of preventive medicine is enormously opening out, and the present number of the Commonhealth deals with the new fields, the limit of which it would be foolhardy at this time to predict.

What is it that gives impetus to this expansion? Raymond Pearl in his Lowell Lectures in 1922, published under the title "The Biology of Death," gives various curves showing the expectation of life at various times in the world's history collected from many sources. One chart compares this curve for the Roman provinces in Africa with that of the United States today. During the first decade of life when communicable diseases work their greatest havoc we show an appreciable gain. This gain decreases until around the fortieth year. After that the old provincial Roman looked forward to a longer life than his descendant in the United States today. The same was true for the ancient Egyptian. Yet we open the tomb in the Valley of the Kings with a sense of superiority emanating from our many centuries of "progress."

Again the accompanying curves show that in the last twenty years in Massachusetts the death rate from communicable diseases has been cut in halves while for the same period the deaths from degenerative diseases have been steadily climbing. These include heart and kidney diseases, arterio-sclerosis, cancer, diabetes and many other diseases found with advancing years.

How is the rising curve to be stopped? There is no germ against which we can be protected. When recognized, about all that can be done is to prevent the condition becoming worse. That means earlier diagnosis or better still a correction of the causative factors before the disease is sufficiently advanced to make diagnosis possible. For this, people must be examined and their health habits reviewed while they still feel "well." By the time they fall "sick" it is frequently too late for preventive medicine. The Health Examination is, therefore, a suggested method of obtaining the prevention or delay of the development of the degenerative diseases, so that the American of forty may in time look forward to as many years of life as did one of Cleopatra's slaves.



THE HEALTH EXAMINATION; OF WHAT IT SHOULD CONSIST

By J. P. Bill, M.D., Dr. P.H.

Most people are already sold to the idea of health examinations. To the layman this presupposes that a periodic overhauling is applied to a well person to keep him well. This is not always true.

The human engine, like other machines, can withstand a certain amount of abuse. The latter may cause no symptoms for a long time. It is bound to sooner or later, however. Evidence then appears and the physician through it locates the trouble and tries to cure it. When such curative medicine is necessary, the individual is usually unable to do his accustomed work. He is "sick."

Machines are made of standardized parts. The human engine is not. Small wonder then, that many people suffer from the disfunction of one or more weak links. The reasons for this are various. Prenatal development, family tendencies and other factors are responsible. Conventions and habits are also concerned.

For these reasons a careful scrutiny of the body economy will invariably show trouble in the making. The individual may not be conscious of his disfunction or the faulty habits causing it. Indeed, usually he will appear to be well though he himself may not feel that way. The term "below par" best expresses his condition.

Put another way, very few people are wholly well. Nor does one suddenly change from well-being to sickness. There is an interval between. In communicable disease this incubation period is taken into account. Why should it not be in organic or functional disease?

Communicable disease is usually difficult to abort. The physician must wait for it to declare itself. He can do no different. The virus once present cannot be eliminated by his efforts alone.

Disfunctions can be corrected. The doctor need not wait for organic trouble or pathology to develop.

The correction of these faults and the prevention of their developing into disease is the underlying idea of a health examination. It is also known as Individual Preventive Medicine. But many of the disfunctions result from the way we live. Accordingly then the health examination will consist of two parts:

(a) A thorough physical examination, and
(b) A scrutiny of one's daily habits.

Each is useless without the other. Both must be employed to ascertain the cause of disfunction.

Doctors are trained primarily in the realm of pathology—disease processes, their recognition, symptoms and cure. The bulk of their practice is in this field. A physical examination as ordinarily given is directed toward the recognition of disease. The various tests, the descriptive adjectives, the very line of thought, are along this line. Even in insurance, school, industrial, and other more highly specialized examinations, the fundamental idea of disease obtains.

The health examination is based on different premises—those of disfunction or dis-ease. The examiner must have the limits of normal functions in mind. This means simply applying his knowledge of physiology to the inquiry. The view point is entirely different. It makes use of a different part of the examiner's training.

The physical examination as it has developed in our work is composed of three parts.

(a) The physical examination of the body itself.
(b) Analysis of urine, feces, and blood.
(c) X-ray of the head, chest, and abdomen.

The Examination Record.

Each examiner usually has his own system of registering his findings, but essentially they are similar.

The writer's examination sheet is divided into sections, including appearance, physique, posture, spine, feet, blood vessels, chest, heart, lungs, etc. Each is subdivided into bold faced headings with descriptive adjectives in lighter type. The latter are checked in ink or red pencil, according to whether the findings are normal or demand correction.

The following is an example:

Mouth. Teeth: good, fair, poor, false, upper, lower, carious, last treated.
Pyorrhea. Breath: normal, foul, ammoniacal.
Uvula. Tonsils: enlarged, septic, inflamed, ragged, removed, when?
Tongue: coated, fissured.

This type of examination sheet is useful in saving time and concentration. With one like it, the physical examination can be completely covered in about an hour's time.

As part of the physical examination, urine, stools and blood are examined by the laboratory, and a charcoal test outlined to supplement the x-ray findings of the digestive tract. Other tests are made as indicated.

One of the commonest associations in disfunction is focal infection. The X-ray is used as a routine in all cases for it is the only satsfactory way of demonstrating infection of the focal sort, something that is very common. Teeth sinuses, lungs, and digestive tract are all filmed. Frequently the cause of a "below par" condition is discovered by this means alone.

The hygienic examination. This deals directly with the patient's daily habits. If the examiner were to ask questions the time consumed would make the procedure impracticable. Most agencies doing this work have a sheet of printed questions covering food, liquids, habits of sleep, bathing, elimination, etc., which the client fills in and which the examiner looks over with the red pencil.

Recommendations. The features requiring invariable attention are Diet, Posture, Exercise, and Daily Habits. The disturbing factor most frequently encountered is toxic absorption. Of the possible foci of infection enumerated above, the colonic end of the digestive tract is most often to be criticised. Auto-intoxication is a moot point with many internists. With those specializing in health examinations, changes in diet, posture and elimination make for such a marked difference in function as well as in feeling as to leave little room for argument.

There are in addition some individuals who show beginning disorders of a more serious nature. Various stomach troubles, hardening of the arteries, kidney disturbances, to mention but three of many possibilities revealed by this sort of inquiry will be the more easily righted than after they have had a chance to do permanent injury.

Diet, posture, exercise and daily habits are all intimately related. Animal and man have a similar body design. Man has developed the upright posture. A long time ago, a well developed and uniformly exercised body was the rule rather than the exception as it is today. Relaxed abdominal walls are common. The digestive organs behind them are distended and overloaded. There is functional delay in evacuation. To these faulty mechanical factors are usually added those of a subjective nature.

The body literally must be remade. The drooping posture must be changed, through suitable exercises, to an erect one. This means a slow process of flattening round shoulders and toning up the abdominal wall. At the same time a lighter diet, more easily digestible and of less bulk, must be first chosen on the basis of the functional limits found, and then outlined in simple form to the client. "May take" and "Must not take" defeats the purposes in view. An actual menu must be prepared, otherwise the examiner has no means of evaluating the food intake or controlling it.

The popular idea of bowel evacuation is once daily. The mere fact is meaningless, for there may be a delay of days in the transit of any given meal through the digestive tract, even with a daily evacuation.

Some forms of physio-therapy may have to be employed to stimulate bowel wall muscle. In addition a new regime of bowel hygiene may be followed.

When the above and other factors are put into effect, all at once, it is a foregone conclusion that in time there will be improvement.

Under ideal conditions one should report to the examiner at stated intervals, for only by this contact can trace be kept of functional tendencies, or recommendations intelligently made. For those not requiring such contact, those for whom simple advice relative to diet, etc., is alone indicated, an annual visit to the examiner may be sufficient. The time interval obviously will be determined by the findings and character of the corrective regime outline.

It is possible that in the course of the inquiry, a matter of doubt will arise necessitating the opinion of a specialist.

Certain pelvic conditions, dental, throat and other troubles should be, and usually are, referred to specialists in that particular field for opinion, treatment or advice.

The question is frequently asked, "Who can give health examinations?" The answer is, the general practitioner—the family physician. His training and experience are obviously broad. He has had the necessary ground work in his study of physiological reactions in medical school. His biggest difficulty is in assuming the view point of physiology, rather than pathology, also perhaps in finding time. The former can be easily acquired. The latter difficulty could be overcome if the physician were adequately paid for the detailed study necessary in an investigation of this sort. The patient should consider the expense of such an examination to be health insurance and of the very best sort.

CO-OPERATING IN A HEALTH EXAMINATION PLAN

Alec N. Thomson, M.D., Secretary, Public Health Committee, Medical Society of the County of Kings, Brooklyn, N. Y.

THE physician has needed a modus operandi in his role of ultimate health officer. For years he has been preaching return to health to the sick and near sick; for a long time he has been fighting, as an individualist, in the war upon contagion; for even longer he has been boosting for better and even better hygiene and sanitation; and now he finds that all that he has done for these many years while treating disease he can do better today because he has less disease to treat.

What road shall the physician travel? What, if any, common ground is there for the physician, the health officer, and the layman to meet upon? This has been a cause for much discussion, and apparently a partial answer may be found in periodic medical examination of the apparently healthy person. This is a field in which the health officer can preach the lowering of morbidity and mortality rates; the health enthusiast picture a perfect future race; the physician exercise his diagnostic technique and develop along therapeutic lines; and the average citizen, the apparently healthy person, participate with reasonable expectation of a fair return for the effort.

There are a few high lights on the subject which need explanation, and some means must be devised for adjustment. The Health Officer has been mainly active in mass health promotion and protection; the physician steeped in major disease diagnosis and treatment; the layman interested in his pains and symptoms. All must become adjusted to personal medicine—the health officer as the promoter, the physician as the guide, and the layman as the willing seeker after health.

Obviously, then, unless the doctor welcomes the client desiring to remain healthy, the work done by the health promoter will avail but little.

Work of a County Medical Society.

The public health committee of the Medical Society of the County of Kings is so constituted that present day medicine is recognized by committee appointments being made of those society members whose work is in the health department, in hospital administration, in unofficial health agency organization, in the specialties of medicine and surgery, as well as general practice. Thus adequate consideration of all phases of the public and private aspects of both curative and preventive medicine is reasonably assured. Thus, again, the committee experience during the past two years has resulted in developing contact with and an understanding of community health interests.

The major development during this period has been the growth of the demand for periodic examinations of apparently healthy persons and as a preparation for the general campaign for health examinations a circular was sent in March, 1924 to 2500 physicians of the County of which number 1500 are members of the society. The physicians were urged to keep their clientele well and to invite them to come for health examinations.

The public health committee presented the subject of health examinations through this circular by stating:

"The person most interested in a health examination and most in need of one usually has a private physician.

"The private physician is more or less familiar with the patient's interests and environment and therefore better able to render health service to the individual than is the case when the examinee comes as a stranger to a strange physician. This is important—the success of the health examination depends more upon the rapport between physician and examinee than does a diagnostic examination.

"Private practice offers ideal opportunities for repeated contacts between physician and examinee for guidance and stimulation toward better health and renders re-examination more valuable.

"Private practice has one disadvantage—it is primarily organized to meet emergencies—the examinee is free from pain or fear of disease. They must be planned for in advance—they require the doctor's uninterrupted time.

"The medical technique used in making health examinations differs in no essential from that of any thorough physical examination. The points of view of physician and examinee and their attitude toward the examination are, however, essentially different from the usual relationship between physician and patient.

"The doctor needs to know health examination method and system and understand the suitable approach to the examinee and the type of instruction to give.

"Preventive medical practice—pre-clinical medicine, if you please—applies to all supposedly well individuals. Doctors should be leaders and undergo health examinations personally."

Opportunity for a personal examination was offered to 100 of the members of the society, and after the completion of the series and a digest of the findings there will be a conference between the committee and the examined physicians in order to evolve from this personal experience any possible improvements in procedure.

Based upon this experience will be the committee's report to the society as a whole, with the expectation of increasing interest as well as disseminating the ideas of medical men based upon the observation and experience of medical men —all members of the same organization.

By May, 1924, the ground work within the medical society had been covered by the committee on post graduate education as well as the committee on public health.

ROUTINE PHYSICAL EXAMINATION

Lesley H. Spooner, M. D.
Chief of the Medical Department, Boston Dispensary.

THE problem which confronts today our Health Boards and others vitally interested in preventive medicine is that of bringing to the attention of the greatest number the advantages of routine physical examination.

To many this may seem a trite subject, but such is really not the case. The daily press is of great value in promoting this work, but there does exist between the members of the medical profession and the more intelligent and progressive of the laity a distinct lack of co-operation, to which is due the failure of progress of a scheme which should by this time be so well launched that all propaganda should be unnecessary.

It is with a feeling of some fear lest facts often repeated lose some of their value that I bring once more before the public the existence of the Health Clinic which has been operating during the last four years at the Boston Dispensary. Here in the hands of four specialists such examinations are conducted on this apparently "well group" of self supporting very moderately situated people.

The results of this work may be found by consulting the files of certain of our current medical journals.* Space limits me to the mere statement that the end justifies the means; that organic disease is very frequently revealed when in a period distinctly amenable to proper treatment; that factors which we are led to believe predispose to organic disease are also discovered in seasonable time; and lastly that faults in habit and hygiene are found in such percentage that one wonders that the crusades against improper hygiene which have to be launched during the last two decades have born such poor fruit.

This clinic is cited for two reasons; firstly since it yields most conveniently the largest bulk of statistics which I am able to gather and secondly because a routine examination can be obtained by those who are economically fit for admission to this group in a manner most convenient to the individual and the physician. That such a complete study can be made by a group of specialists

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***Medical Journal,* December 10, 1921. *Boston Medical & Surgical Journal,* Vol. 190, May 1, 1924.

for a fee within the reach of the working class is due to the fact that a great amount of the overhead is born by certain other larger clinics.

The fact remains, and I hope not far in the background, that there is nothing unique in this method of study of the "apparently well." All such investigations can be carried out by any careful, enthusiastic practitioner, often unaided, and only with recourse to the specialist or specialists as occasion may arise.

The day is passed when the physician is degraded in the eyes of the public when he admits his inability to make what to him is considered a proper diagnosis; when he demands time for further study before pronouncing his final word. Even with all the facilities afforded by a well organized modern clinic study is necessary in many complicated cases, so that the physician is often reminded of the fact that he is simply a clearing house in the handling of patients and that final diagnosis is not infrequently to be obtained only after detailed and complicated study by a specialist.

It seems perfectly clear that although a group of specialists working, as a unit in a clinic, can handle this situation more conveniently, yet the individual practitioner can succeed as well provided he is supplied with proper enthusiasm.

Here lies the great stumbling block in our progress. The dental profession is far ahead of their medical colleagues in this respect, since the dentist has been preaching for years the wisdom of routine dental examination and the proper prophylactic care of the mouth and teeth.

It is, in my opinion, the fault of the medical profession that the doctor deals only with the sick. It has been the experience of not a few of the laity with whom I have spoken when applying to their physician for such examination when in apparent health, that they are met not with support and enthusiasm, but more often with distinct rebuff. So long as the busy practitioner contents himself with the care of the sick he will never be a factor in furthering this form of preventive medicine.

Our schools of public health and the better of our medical schools lay great emphasis on what is listed in the curriculum under the heading "preventive medicine." Must we wait until the present day graduates become a sufficient factor in our communities to bring home these elementary facts of medicine? And must we also pray that they be not so eminently successful in their practice that the care of the sick will so far occupy their time that there is none left for the development of a system of routine examinaion?

The public is ready to support such a movement, but co-operation with the best trained and most influential members of our profession is necessary.

KEEPING WELL BABIES WELL

Value of Physical Examination for Babies and Pre-school Children.

SUSAN M. COFFIN

PHYSICIAN, MASS. DEPARTMENT OF PUBLIC HEALTH.

MANY important points arise when we come to discuss our efforts to make childhood a period of perfect health, not least among them being the matter of regular physical examination.

One physician, when asked how early children should have examination, replied "At birth." He went on to say that it should be repeated at regular intervals from then on, with especial attention to the pre-school period which is so often neglected.

We are realising more and more that to start children in school burdened with defects which may be corrected is but a plain advertisement of neglect and lack of co-operation on the part of parents, physicians and all interested in health.

In Massachusetts and other progressive states, after the child enters school, the law provides that he shall have regular physical examination throughout his school life. But our aim should be to have all defects that appear before school age corrected at once. A child who has to have glasses fitted, tonsils and adenoids removed, and teeth fixed up the first year or two of school life certainly cannot be blamed for not "making his grade." Julia Abbott says 30% of children have to repeat the first grade—which is doubtless due in a considerable degree to uncorrected physical defects.

Regular physical examination with prompt medical attention to defects and slight illnesses we feel to be one important answer to the often-asked question, "How shall we keep our children well?" Bottle fed babies especially need frequent looking over, weighing and measuring, and experienced advice in regard to formulas.

THE WELL-BABY CONFERENCE.

The Well-Baby Conference comes in here as a means of awakening interest in this phase of health promotion as teaching and demonstration rouse many ignorant or indifferent parents to attend to their children's needs. The busy general practitioner has no time to answer what seem to him foolish questions, and also he sometimes lacks a keen realization of the amount of ignorance and superstition that even now surround maternity and infancy. To quote a few items that come up with every conference held, many mothers still believe in "maternal impressions," but are delighted to hear that they no longer need to; still think first teeth are "of no account," but are interested to learn of their importance and care; still feel it their duty to drop breast feeding if menstruation occurs, but are willing to try keeping on if the doctor says it's all right. One of the most tenacious ideas to combat is that children must have the so-called children's diseases. The mother who doesn't believe this is indeed modern.

There is no time parents are more receptive than when they bring their children to the doctor to be examined. 10 minutes in the consulting room is worth an hour in the lecture hall. They have come because they really want to know if Johnny is a perfect baby; and if he isn't, ten to one they are willing to hustle around to do what they can to make him so. When the private physicians get clearly in mind the hold they can have in this way on their families, the Well-Baby Clinic will become an interesting relic in the history of preventive medicine; just at present, however, it has an active and useful part to play.

In Massachusetts, Well-Baby Conferences were started in Boston about 14 years ago and have spread tremendously in number since then. Now we find them in all of our cities of 100,000 or more population. In some of the clinics feeding problems are handled, and in all, defects are diagnosed and advice in general hygiene given. Many states under the Sheppard-Towner Act make provision in their programs for examination of babies and pre-school children and also for prenatal examination of mothers.

THE STATE PLAN.

The Massachusetts Department of Public Health in its Division of Hygiene has outlined a plan for holding demonstration conferences in those towns requesting help in establishing permanent well-baby clinics to be carried on by local organizations. The routine is simple. The District Health Officer, local Board of Health and resident physicians are notified of the date and hour of the conference and asked to come if possible. All arrangements as to notification of parents and as to place, materials, and conveniences for the conference are looked after by the community nurse or nurses and their volunteer helpers, with the advice and help of one of the State nurses. Publicity is gained through local papers, by radio, through churches, schools, movie houses, etc., and by the personal work of the nurses. The mothers register their children with the nurse and bring them by appointment so far as possible as this is the best way for all concerned. It is the mothers usually who bring the children—we average about one father to a clinic.

The children on arrival at the Conference are undressed, weighed, measured and their cards made out. They are then passed along to the doctor who examines each child, checks the examination blank, explains any defects found to the mother and answers her questions so far as possible.

Treatment is not discussed, medicines and feeding formulas are not prescribed, and only simple hygienic measures relative to the care and training of young children are suggested. The mother is, however, strongly urged to take her child to the family physician for periodic examination, to take him at once if defects are noted, also to have medical care if possible for even apparently slight illnesses. That this advice sometimes bears immediate fruit was evidenced in the case of the small boy who had his tonsils out in less than a week after the Conference; and in several instances where we learned that the mother took her child to the family physician next day. Many problems arise and a few that seem to be ever with us in the Conferences just now are: how to get safe milk; how to get dental service for pre-school children whose parents can afford to pay only a very small fee; how to get harmful posture corrected. The treatment of eye defects (muscle cases) is also difficult to obtain.

The publications of the State Department of Public Health relating to the hygiene of maternity and infancy are distributed to the mothers. The habit leaflets of the Mental Hygiene Association are also frequently found useful.

REPORTS

A report of defects found is sent to each family physician whose name appears on the child's record. Duplicate examination blanks of all children examined are returned to the community nurses, and a brief summary of the work done at the Conference is sent to the District Health Officer in whose district it is held. Later, one of the State nurses from the Maternal and Infant Hygiene section visits the local nurse and goes over the records to find how many defects have received attention. Conferences have been held in 13 towns, 405 babies and pre-school children were examined, of whom 273 showed defects needing attention. This does not include those needing dental care alone. There is an increasing demand for talks on the care of children for the mothers who come to the Conferences, and it is planned to have some such talks given, but not on the day of the conference, though a slide talk to the waiting mothers worked very well in one instance.

FOLLOW-UP WORK.

There must be, of course, reasonable surety that effective follow-up work will be done by the nurses in each town. A conference which bears no fruit in the form of defects corrected or faulty conditions improved, would naturally be nearly valueless. Many parents have to be reminded of their promises along this line and often need just the encouragement and assistance the nurses can so well give. The energy and enthusiasm of the community nurses is certainly a genuine pleasure to all who work with them.

Some of the doctors in the towns feel that it is very desirable to have physicians and nurses from the State Department of Public Health conduct a conference as it helps to give new emphasis to many points in the care of children which they are constantly trying to impress upon their patients.

SUMMARY.

1. Thorough physical examination at birth and at regular intervals thereafter, paying especial attention to the now-neglected pre-school period is an important part of any maternal and child hygiene program.

2. The Well-Baby Conference is one means close at hand for arousing interest in the health problems of infancy and early childhood, its object being the early diagnosis and correction of defects, along with a certain amount of health teaching for which it offers so excellent an opportunity.

3. Again, as has been so tersely put by Dr. Lakeman recently "from a community viewpoint the Conference, bringing together as it does, in a common and vital interest, mothers from various social groups, serves as a valuable means of impressing all who have a part in it, with a sense of the civic responsibility for the health of little children."

AN OUNCE OF PREVENTION FOR THE SCHOOL CHILD.

FREDRIKA MOORE, M.D., PEDIATRICIAN
MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

MARK TWAIN says, "People are always talking about the weather but nothing is ever done about it." Aches and pains, like the weather, produce a great deal of small talk without much action except—and it is a big exception—in the case of school children.

School children in Massachusetts are obliged to have a yearly physical examination and since "Habit is a cable" which is woven thread by thread until it is too strong to break, the habit of yearly looking over may become an unbreakable bond between its possessor and such health that when the age usually dedicated to aches and pains arrives the aches and pains are conspicuous by their absence.

To wait until then, however, before getting health returns on the time and money spent on the examinations and then "follow-up" would be to make the heart sick with hope long deferred. Fortunately, there are more immediate returns—whereas, in the past the child with malnutrition or carious teeth, or tuberculous glands, or organic heart disease, or myopic eyes lagged through school repeating grades and gaining a reputation for ill temper or stupidity; now, if he becomes backward, maladjusted or disagreeable, the first cause looked for is a physical handicap. More often than not, one is found and with its removal the child takes his proper place in the school world. Where the medical side of the school health work is functioning properly there is no retardation, or should not be, because of physical conditions. If there is, it is due to the neglect of the parents to attend to the disability.

The United States Bureau of Education reports that in one of the cities of a mid-western state there were 400 repeaters in the schools. All of them were discovered to have physical defects. In one hundred the defects were corrected with the result that these children graduated from the repeater class. Every one intimately connected with school work will feel that this is a just estimate of the results of medical examinations—including of course the "follow-up" work. Unfortunately very few accurate figures are available on the correlation between physical defects and retardation or absences. One study made by the United States Public Health Service on 3,786 children in Missouri showed that children with no defects were absent from school consistently less than those with defects. In the light of this conclusion and of the Bureau of Education report the yearly medical examination not only benefits the children but saves money for the community. For example in Massachusetts it cost in 1923 on an average $93.60 a year to educate a child. Every time a child repeats a grade the community suffers a loss of that amount and every day's absence means the loss of a proportionate amount. Massachusetts children are no more free from defects than children elsewhere. As an instance, all the school children in three typical rural towns were examined by the State Department of Public Health. Out of the 270 children 246 had one or more defects. If only a fourth of these children and that is a moderate estimate, are put into condition, yearly examinations are a benefit to the community pocket book even though all the children do not take advantage of the advice given.

Examinations for school children cannot be discussed without some mention of the pre-school child. As a matter of fact the health of human beings should be a consideration from the beginning of life and care should be continuous. Children should enter school in good condition so that the function of the school health authorities would be merely to see that the good condition continued. Under the present circumstances many children enter school handicapped by physical disability, poor background, and mental retardation, and are put to work, without any classification, in the same classes with the children who are entirely "free" to learn—thus causing an accentuation of undesirable traits and the development of unfortunate complexes. The establishment of nursery schools and the extension of baby clinics to include the runabouts will in time lessen this evil. But for the present it might well fall within the province of the school health officials to examine at the beginning of summer the children entering school in the fall, both mentally and physically in order that as many defects as possible may be removed before the child enters school and to make possible a rough classification of the children according to ability.

It is perfectly obvious to anyone who is a careful observer of school health work that yearly medical examinations are laying the foundation for healthy manhood and womanhood, are permitting the children to benefit more by their school work, and are saving money to the community. The next thing indicated is records which will give accurate data on these points.

THE PERIODIC EXAMINATION IN RELATION TO THE STATE'S PROGRAM ON JUVENILE TUBERCULOSIS.

SUMNER H. REMICK, M. D.

DIRECTOR, DIVISION OF TUBERCULOSIS, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

THE program is ready and the state has appropriated the necessary funds to start this fall on the program for the control of juvenile tuberculosis. This will extend over some ten years and more than 200,000 school children will be examined. They will come from three groups: (1) those that are 10% or more underweight; (2) those that give a history of exposure to tuberculosis; and (3) those that are chronically absent or for any other reason constitute a particular health problem in the school. The examinations will be made by a clinic staff which will eventually travel to all parts of the Commonwealth. The children after examination will fall roughly into three groups: (1) those showing hilum tuberculosis or tuberculosis about the root of the lungs which will make up about 8% of all those examined; (2) some 27% who will be found potentially tuberculous or suspicious; and (3) the remaining 65% who will offer mainly nutritional problems. The first group, because of the urgency of their need, will be the most adequately handled. The problem of the third group has been dealt with elsewhere in this number of the Commonhealth, but it is the second or potentially tuberculous group that I wish to discuss particularly here.

At the clinic the examination will be carefully recorded and a copy sent to the family physician. The parents will be insistently urged to take the child to this physician promptly. They will do so in most instances. The findings will be reviewed, hygienic advice given and recommendations for the correction of existing organic defects made. Does that end the matter? If so, it is comparable to the fire-warden who from his look-out perceives a fire. He meticulously notes in the day-book, the hour and location of the conflagration, the direction of the wind, the humidity, the relative positions of Venus and Mars in the heavens and then pulling up another blanket sinks to a well earned rest. Both the day-book and the clinical record contribute to interesting and valuable statistics which, as the volume accumulates, may be almost staggering when the amount of human effort necessary for their precise compilation is considered. But neither in itself puts out the fire nor lessens the potentiality of tuberculosis. Something must be done about both.

In the case of the child with the threatening tuberculosis the recommendations as to tonsils, teeth, posture, etc., must be carried through. There is no community in Massachusetts so remote or so poor but what this can be accomplished for everyone of its children that is in need. Then, even more important, the family physician's instructions as to hours of sleep, hours of play, diet, regular habits, fresh air, etc., must be taken seriously by the parents and teachers and followed, not for a day or sporadically, but month in and month out.

But how are these parents and teachers to know the results of all this; and to be sure whether this more or less arduous supervision is getting results? How do these same teachers know whether their arduous labors with reading, writing and arithmetic are getting results? They give periodic mental examinations. So to test the efficacy of the improved hygiene the children should go to their physicians for periodic physical examinations. Thus, and thus only, can the parents be sure that the cloud of tuberculosis which hangs over their children is being dispersed, and alter their hygienic regime to fit the altering conditions. Thus, and thus only, can the State get full return for every dollar expended in its extensive campaign against juvenile tuberculosis.

PHYSICAL EXAMINATIONS IN INDUSTRY.

Derric C. Parmenter, M.D.
Instructor in Industrial Medicine, Harvard School of Public Health.

IMPROVEMENT along general public health lines has been distinctly noticeable in the past few years. People are realizing the value and need of periodic physical examination. The more progressive and intelligent individuals are using what opportunities they have for having such an examination. Nowhere does it seem more important to apply this basic public health measure than in industry. Here, large groups of the poorer elements of the population can be studied, both with regard to their actual health and the effect of various types of occupation thereon. There seems to exist in the minds of some people, particularly employers of labor, a little doubt, first, as to the value of physical examinations, and, secondly, as to the best methods of instituting and using them. It seems worthwhile to mention briefly some of the advantages of generally using physical examinations in industrial plants.

The value of physical examinations for employees in industry has been seen by a number of employers, but there are still those who feel somewhat doubtful about their real value. It is difficult to see why there should be any real objection to the use of physical examinations in industry, since the benefits to be derived therefrom, by both the employer and the employee, are so obvious.

Every manufacturing concern believes in having its machinery, production, and system of sales and accounting at the highest point of efficiency. The one thing which so many have omitted, is, to keep the human element—the employee—at the highest point of efficiency. In order to do this, a physical examination at the time of employment is almost essential, together with some sort of follow-up and re-examination later. Such examinations enable men to be put at work for which they are most fitted to do. Any physical defects can be discovered and corrected and the worker is prevented from injuring himself at an unsuitable job. A good many defects—minor in character—may be discovered, which will prevent future accidents.

Various objections have been raised from time to time to the use of physical examinations in industry. The chief one, that examinations will exclude men from employment, need not be at all serious. In the first place, many are found on examination not to have defects and ailments which they think they have, so that they are reassured rather than discouraged. The examinations are designed to place men properly rather than to exclude them from employment, and the actual number of rejections in establishments using physical examinations is quite small. Further objections have been raised in regard to the length of time necessary for such examinations. A little over ten minutes for each examination is usually sufficient for the purpose in most industries, and this, after all, is a small price to pay for the increased efficiency of human machinery of the plant.

From the point of view of the employee, a physical examination, at the time he starts work in a new place, tells him just what condition he is in, how to remedy physical defects, and insures his being placed at work which is within his ability. An examination protects his fellow workers, and, later on, himself, from the possibility of contagious disease, and it may protect him from accidents due to machinery which he is unable to use. Proper use of these examinations will hardly ever bar him from employment, so that any objections which Labor may have to this procedure, do not seem sound.

From the point of view of the employer of labor, such examinations unquestionably increase the general health and efficiency of the working force. They enable him to discover defects which may later appear as reasons for compensation payments, and they afford an excellent chance to establish closer and more friendly relations with the individual workmen.

From the public health point of view, physical examinations in industry afford an excellent chance to discover the actual state of health in the community, as well as to catalogue a certain amount of potential disease. The larger industries are depending more and more upon physical examinations, and both they and their employees are finding that it pays good dividends in health and in efficiency.

PHYSICAL EXAMINATION AND ATHLETICS FOR GIRLS.

Mary R. Lakeman, M.D., Assistant Director, Division of Hygiene, Mass. Department of Public Health.

ONCE, and it was not so many years ago, a tragic occurrence took place in a high grade girls' school in this State. A student, apparently well, met sudden death during a game of basketball. This occurrence, unfortunate though it was, did not prove that basketball is a dangerous game for girls, neither did it point to neglect on the part of the school authorities, for they were acting in good faith according to the light they had at the time.

The incident did, however, serve to drive home to those assuming responsibility for the direction of athletics an important lesson—the necessity for knowing the physical condition of each individual who is to take part in active sports and the equally impelling necessity for acting upon that information by adapting exercise and active sports to the capacity of the given individual to obtain benefit and not harm from them.

Today the principle of physical examination for every participant in active games and competitive sports has been generally accepted and is carried out in all well-regulated schools and colleges, in camps and in centers for active recreation and physical education.

Safeguarded by such an examination in the hands of physicians knowing the effects of exercise and rest on the human body and familiar with the facilities for controlling activities, our girls are now free to develop their physical resources to a degree not appreciated before we could offer such a safeguard.

How often we used to hear a mother say, "My daughter is not strong enough to go into the gymnasium," little realizing that strength is not a heaven-bestowed attribute but, within limits, an asset to be earned by women—as by men —"by the sweat of the brow." This mother was alarmed not altogether without reason, for she had often learned of unfortunate experiences in which zeal had failed to be tempered with judgment.

All this is rapidly changing for the mother of today knows that the school or college her daughter attends and where she aspires to win honors in athletics, has provided for a thorough physical examination and has assumed control of her activities to a degree sufficient to enable those in charge of physical education to adapt her activities to her physical abilities. Nor is the well-equipped educational institution content with merely protecting the health of its students. It is squarely facing its responsibility in helping them to develop their physical resources to the highest point of efficiency that lies within their grasp.

Not alone in schools and colleges are our girls thus safeguarded and encouraged to make the most of their physical assets, but in all of the well-organized recreational and semi-social groups such as the Girl Scouts, Campfire Girls, Girl Reserves, Durant and the Y.W.C.A. physical examination is required for registration in classes or for use of the facilities for active sports.

Furthermore, at least the two last-mentioned are offering in the larger cities at slight or no expense to the individual a thorough health examination of the sort described elsewhere in this issue. This is available to anyone wishing to sum up her physical assets in order to keep in first-class trim. Treatment is not offered except in the form of advice regarding habits of living and the amount and kind of exercise adapted to physical needs. The number demanding this type of examination is constantly increasing.

On all sides we see the custom of taking account of stock—physically speaking—before launching upon any new venture becoming more and more generally accepted. In direct proportion as it becomes the universal custom may we look forward, not alone toward the avoidance of mishaps, but toward the upbuilding of a race of women, strong in body, sane in judgment, ready to face life situations as they meet them. Such a race will give no support to nerve sanatoria, and when the time comes they will find themselves able without jarring their "nerves" to guide little children in wholesome physical and mental growth. The human race is safe in the hands of such women.

Hygienic Generalities

CORRECTION

Through an error of the printer the usual editorial heading has been omitted. The reading matter on page 67 headed "Hygienic Generalities" "Smallpox" and "Summer Courses in School Nursing" are editorials. Dr. Lakeman's article ends with the first paragraph on page 67.

In the Table of Contents under "Report on the Division of Food and Drugs" the words "Eugene R. Kelley, M. D., Chairman" should be omitted.

toes, rice, and even macaroni. "Regular exercise, preferably out of doors," may be as freely recommended to the steeple jack as to the stenographer, and probably means no more to one than to the other. A classic example of the impossible is for the woman with seven children to "go home and keep off her feet."

Again, how little foundation in known fact is there for much that is advised. What should we say as to the consumption of water in the obese? How about the hoary prejudice against water with meals lest the saliva and gastric juice be diluted? Is it not better to drink at meals than not to drink at all? In one place it happened that one examiner was giving almost the identical diet to the over weights that another was giving to the under weights, and in not a few points it was impossible to decide which was right. Many sins are committed in the name of constipation from the cannon ball to the cold prune floating in the glass of water before breakfast. Just what is "roughage" and may its use not be abused? What is the normal bowel rhythm, once in eight or forty-eight hours, or is there really any such rhythm? Is it better to pound the pavement in the fresh air or exercise in a gymnasium? Just why is hot food better than cold? How much sleep is "more sleep"? One might go on indefinitely. But in the presence of the health examination does it not behoove us all to take down and thoroughly inspect and dust and even selectively discard our old store of hygienic generalities.

G. H. B.

Smallpox!

The country is showing an interest in smallpox such as has not been known for a generation. Why? Because of the prevalence of smallpox: Los Angeles, Atlanta, Birmingham, Indianapolis, Duluth, Pittsburg, Detroit, New Britain. Much of it is not the mild form that is often confused with chicken pox and that, like the poor, is always with us, but is the old fashioned virulent small pox with many deaths. Of the first 55 cases in Pittsburg 11 died, and there have been over 119 deaths in Detroit this year.

It is a tragic truth that the more effective a method of disease prevention is the more difficult it is to sustain interest in it. This is the converse of the adage that familiarity breeds contempt. Familiarity with smallpox breeds respect as evidenced by the torrent of individuals seeking vaccination in Detroit. It is a sorry reflection on us as reasoning animals that we can be roused to our sense of responsibility only by the presence of the disease, which would be unknown had we but fulfilled our duty. Do we sign fire insurance papers only by the light of a conflagration?

The prevalence of disease in a community is commonly blamed by the layman on an "inefficient board of health." In the case of smallpox the law puts responsibility squarely on the shoulders of the school committee. The indifference with which they take this responsibility is in some instances appalling. If we knew the number of unvaccinated children illegally attending public schools industries are depending more and more upon physical examinations, and both they and their employees are finding that it pays good dividends in health and in efficiency.

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HYGIENIC GENERALITIES.

With the increasing demand for periodic physical examination by the supposedly well the medical profession is faced with the necessity of giving specific advice on such every-day matters as diet, sleep, exercise, fluids, work, recreation, etc. A large proportion of the recommendations coming out of these examinations have to do with such matters. The examinations are of value just in so far as the recommendations are followed. To be followed they must be specific. Yet with our present knowledge it is well nigh impossible in some instances to be both assuredly correct and specific.

This dilemma is often avoided by indulging in glaring generalities. The patient is told to "eat a simple diet and take care of his general hygiene," and then he is hurried out. This often does not mean any more to the doctor than it does to the patient. It is surprising how varied is the layman's interpretation of the modern slogan "green vegetables." Some feel that it includes potatoes, rice, and even macaroni. "Regular exercise, preferably out of doors," may be as freely recommended to the steeple jack as to the stenographer, and probably means no more to one than to the other. A classic example of the impossible is for the woman with seven children to "go home and keep off her feet."

Again, how little foundation in known fact is there for much that is advised. What should we say as to the consumption of water in the obese? How about the hoary prejudice against water with meals lest the saliva and gastric juice be diluted? Is it not better to drink at meals than not to drink at all? In one place it happened that one examiner was giving almost the identical diet to the over weights that another was giving to the under weights, and in not a few points it was impossible to decide which was right. Many sins are committed in the name of constipation from the cannon ball to the cold prune floating in the glass of water before breakfast. Just what is "roughage" and may its use not be abused? What is the normal bowel rhythm, once in eight or forty-eight hours, or is there really any such rhythm? Is it better to pound the pavement in the fresh air or exercise in a gymnasium? Just why is hot food better than cold? How much sleep is "more sleep"? One might go on indefinitely. But in the presence of the health examination does it not behoove us all to take down and thoroughly inspect and dust and even selectively discard our old store of hygienic generalities.

G. H. B.

SMALLPOX!

The country is showing an interest in smallpox such as has not been known for a generation. Why? Because of the prevalence of smallpox: Los Angeles, Atlanta, Birmingham, Indianapolis, Duluth, Pittsburg, Detroit, New Britain. Much of it is not the mild form that is often confused with chicken pox and that, like the poor, is always with us, but is the old fashioned virulent small pox with many deaths. Of the first 55 cases in Pittsburg 11 died, and there have been over 119 deaths in Detroit this year.

It is a tragic truth that the more effective a method of disease prevention is the more difficult it is to sustain interest in it. This is the converse of the adage that familiarity breeds contempt. Familiarity with smallpox breeds respect as evidenced by the torrent of individuals seeking vaccination in Detroit. It is a sorry reflection on us as reasoning animals that we can be roused to our sense of responsibility only by the presence of the disease, which would be unknown had we but fulfilled our duty. Do we sign fire insurance papers only by the light of a conflagration?

The prevalence of disease in a community is commonly blamed by the layman on an "inefficient board of health." In the case of smallpox the law puts responsibility squarely on the shoulders of the school committee. The indifference with which they take this responsibility is in some instances appalling. If we knew the number of unvaccinated children illegally attending public schools in this Commonwealth we would be dumbfounded. In one town in the Berkshires only one third of the school population has been vaccinated. The others have not even gone through the farce of presenting certificates from those licensed physicians, fortunately few, who consider all children unfit subjects for vaccination. One of the five localities in the state in which smallpox has occurred this year had large numbers of unvaccinated children in the schools. The superintendent said he was in favor of vaccination but that the influential member of the school committee was not and he had not dared to press the matter. This "influential member of the school committee" in the presence of smallpox forgot his prejudice and was the first to have his children vaccinated.

The wages of sin are said to be death. Certainly the wages of neglecting vaccination by a community are sooner or later smallpox. The law of the Commonwealth forbids such neglect by the school committee.

G. H. B.

Summer Courses in School Nursing.

Two summer courses for school nurses have just been completed by the Massachusetts Department of Public Health. One was held in conjunction with the State Department of Education at the State Normal School at Hyannis. The other was given at Simmons College. The enrollment at Hyannis was 45; that at Simmons was 30. The subjects covered at the Hyannis school embraced School Nursing Procedure, Biology, and Principles of Teaching; those at Simmons included School Nursing Procedure, Principles of Teaching, Personal Development of the Child, Home Hygiene Teaching and Dietetics. The first only, of the latter group, was given by the Department of Public Health, the others being offered by Simmons.

The results of these courses can only be forecasted. The chief result will undoubtedly be a nucleus of a trained school nursing staff for the cities and towns of Massachusetts. The nurses taking these courses will have a fresher and broader outlook and this will be reflected in better service to the children under their charge. Furthermore, their example will induce others to attend later sessions of these courses.

An outstanding lesson of these courses is the need for better preliminary education on the part of nurses, particularly school nurses. Working in the schools, and as a part of the school staff, the school nurse's general education should compare favorably with that of the average teacher with whom she works. She should be equally able to profit by courses designed to increase her efficiency. If she is to serve as a teacher of hygiene she should have the teacher's qualifications. Training in the care of the sick does not obviate the necessity of other kinds of training as well. Those who have had any experience with teaching realize the difficulty of giving courses which will meet the needs of the nurses who want to do public health work. This is certainly true of school nursing since no clear-cut standards have as yet been developed as to qualifications. Aiming at reaching the average, one is as likely to overfeed one nurse as to underfeed her neighbor.

It is to be hoped that the time will come when school nursing will be entirely in the hands of nurses with a good preliminary education, with a good grounding in general public health procedures, and with at least the equivalent of a summer course in school nursing practice and principles of teaching.

New Appointments.

Dr. Leon A. Alley, at present Assistant Superintendent and Treasurer at the Rutland State Sanatorium, has been appointed to the position of Superintendent of the Lakeville State Sanatorium.

Mr. Merton B. Young has been appointed Assistant Director of the Division of Tuberculosis (Sanatoria). Mr. Young's duties are to be principally the handling of the details of financial administration of the four state tuberculosis sanatoria under the supervision and direction of Dr. Remick and in co-operation with the superintendents of the four sanatoria.

Miss Frances McCloskey has been appointed Secretary to the Massachusetts

Department of Public Health, and as such will act as Director of the Division of Administration.

PLACEMENT WORK OF THE BOSTON TUBERCULOSIS ASSOCIATION.

In August, 1923, the Boston Tuberculosis Association turned its attention to the question of the re-establishment in industry of the Boston consumptive discharged from State or other institutions. Dr. John B. Hawes, 2nd, President of the Association, was appointed chairman of a committee to handle this problem.

A part-time field secretary has been engaged in collecting information concerning placement work elsewhere, interviewing employers of labor, and trying to develop an adequate machinery for placement.

As a result of such study certain essentials become apparent: 1. Constant medical supervision of the ex-consumptive employee; the out-patient department of the Boston Sanatorium seems the logical place for this to be carried out.

2. A committee to serve as an intermediary between sanatorium treatment and the economic rehabilitation of the patient.

3. Vocational training of some kind for the right sort of applicant before being placed in work.

4. A clientele of sympathetic employers.

Up-to-date, sixty-five cases have been referred. Twelve of these have been satisfactorily placed: fifteen applications are still pending. The remainder proved not to be suitable cases for action by the placement bureau.

HISTORY OF MEDICAL PRACTICE IN ILLINOIS.

The Committee on Medical History of the Illinois Medical Society is preparing an interesting "History of Medical Practice in the State of Illinois." The scope of this volume will range from the discovery of Illinois to modern times.

Some of the subjects touched will be: Physicians accompanying early explorers; government surgeons and physicians in attendance at the forts; early medicine in Illinois; theories of healing from the days of the Aborigines through the mound-builders; French and English explorers; the ante-boundary days; sporadic settlers; medical attendants for the covered wagon; herb doctors; primitive surgery; medicine and missionaries; migration of pioneer physicians to new territory; the circuit-riding "and saddle-bag" doctors and their burdens, triumphs and perils; pioneers as "utility citizens"; Ilinois men in war time—there are four conflicts to be considered since the opening of the Nineteenth Century; Illinois medical men away from medicine, i.e., in industry, in science, in belles-lettres—art, music and literature.

The Committee would like to hear from all doctors, former residents of Illinois, or descendants of pioneer physicians of the "Illinois country." Please communicate at once with the Committee on Medical History, Illinois State Medical Society, No. 6244 North Campbell Avenue, Chicago, Illinois.

ANNUAL CONVENTION OF AMERICAN DIETETIC ASSOCIATION.

The 7th annual convention of the American Dietetic Association will be held at the New Ocean House, Swampscott, October 13th, through the 16th. The extensive nature of the program will be invaluable to dietitians in all phases of the nutrition field. In addition to general meetings, sections will meet on administration, education, dieto-therapy and social service. Commercial and non-commercial exhibits will be displayed. Trips of professional interest to dietitians will be taken to hospitals, industrial lunch rooms, hotels and clubs, commercial lunch rooms, colleges and private schools, public school lunch rooms, nutrition laboratory and dental infirmary, the Fish Pier and Wholesale Auction, and to historic Faneuil Hall Market.

For detailed information concerning the Convention address the American Dietetic Association, 221 Longwood Avenue, Boston, Mass.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of April, May and June, 1924, samples were collected in 152 cities and towns.

There were 2,028 samples of milk examined, of which 660 were below standard, 144 samples had the cream removed, and 47 samples contained added water.

There were 270 samples of food examined, of which 49 were adulterated. These consisted of 1 sample of oleomargarine submitted by a local inspector and said to have been sold for butter, and 3 samples of butter which were low in fat; 25 samples of clams which contained added water; 7 samples of fruit syrups which were misbranded; 4 samples of maple sugar which contained cane sugar; 3 samples of olive oil which contained cottonseed oil; 5 samples of strawberries which were decomposed; and 1 sample of candy which was wormy.

There were 58 samples of drugs examined, of which 16 were adulterated. These consisted of 1 sample of bay rum, 1 sample of tincture of iodine, and 9 samples of hamamelis water, all of which contained diethylphthalate; 3 samples of jamaica ginger which were not double strength; 1 sample of tincture of iodine, and 1 sample of camphorated oil, both of which were deficient in the active ingredient.

The police departments submitted 1,555 samples of liquor for examination, 1,457 of which were above 2.75% in alcohol. The police departments also submitted 46 samples of poisons for examination, 20 of which were morphine, 1 cocaine, 3 heroin, 1 codeine, 1 strychnine, 1 opium, and 19 samples examined for poison with negative results.

There were 71 hearings held, and 4 warnings issued, pertaining to violations of the Food and Drug laws.

There was 1 sample of coal examined which conformed to the law.

There were 87 convictions for violations of the law, $1,930 in fines being imposed.

Peter Bellas, Stephen A. Berestka, and Kyerakos Kantanoles, all of Chicopee; Emil J. Darcy, John Kostas, and Alfred Roberts, all of Chicopee Falls; John T. Dole of West Newbury; Waldorf System, Incorporated, of Salem; Ernest J. Gravel and James Smith of Ware; Harry Counalis and Demetrios Gaitanaris, each on 2 cases, of Stoneham; William Chaniss, Fred L. Cote, Thomas J. Frawley, George Pappas, Douglas Peterson, Walter Peterson, Henry Rapacki, Jos. Stopa, George Sturnis, and Anthony Teresliko, all of Holyoke; Henry Coussoule and Frank A. Woodwell of Newburyport; Leonard Hersey and Eli T. Rogers of Beverly; John Jokinen, Torsten Mendelin, Michael Mustonen, William D. Anastos, Fitchburg Bon Ton Restaurant, Incorporated, and John Fong Ying, all of Fitchburg; Harry Douvris of Woburn; Lewis A. Brown of Rowley; Michael H. Giosasi, Jack Himells, on 2 cases, Overland Stores Company, Arthur Thomas, George Tomporis, Waldorf System Incorporated, on 2 cases, John Dabrilo, Nicholas Gouronses, Frank Green, Charles Martiris, John J. Nicholas, R. & R. Bakery & Lunch, Royal Baking Company, Charles Sharameta, John Stines, James J. Sullivan, and Charles Thomas, all of Worcester; Joseph Dumas of Dudley; Charles Koshivas of Medway; Michael Gausia and John Wacylzyk of Northampton; Gus Gelep, Frank E. Golder, Edward J. O'Brien, Mary Polley, and Joseph Wedge, all of Leominster; Miller Brothers of Hudson; Charles Lucas and Frank H. Markey of Marlboro; Harry Geragotelis of Natick; and Nicholas Moskos of Framingham, were all convicted for violations of the milk laws. Waldorf System, Incorporated, of Salem; Jack Himells, 1 case, Overland Stores Company, and James J. Sullivan, all of Worcester, all appealed their cases.

George E. Kokenakas of Boston; Adjutor Dupius and Charles Levis of Fall River; Carl Gold and Max Robonovitz of Springfield; Stephen Dallas and Moses Janigian of Worcester; American Proprietary Syndicate of Malden; and Meyer Kressler of Somerville, were all convicted for violations of the food laws.

George Armenis and George E. Kokenakas of Boston; and Edward H. Rubinwich of Springfield, were all convicted for misbranding.

Neil Blanc, Samuel Greenberg, and Edward H. Rubinwich, all of Springfield, and Star Spice Company, on 2 cases, of Boston, were all convicted for violations of the drug laws.

Timothy E. Toomey of Wakefield was convicted for violation of the coal law. He appealed the case.

Samuel Handler of Fitchburg was convicted for violation of the mattress law. He appealed the case.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 5 samples, by James Koshivan of Medway, and Lillian Smith of Granby; 4 samples, by Antone Szloctka of Granby; and 3 samples each, by Fred Mercier of Dwight, and John T. Dole of West Newbury.

Milk which had the cream removed was produced as follows: 1 sample each, by Charles Wadlin of Salisbury, and William M. Smith of Dwight.

Clams which contained added water were obtained as follows: 6 samples, from Rufus S. Brown of Newburyport; 2 samples, from Joseph McEnroe of North Weymouth; and 1 sample each, from J. A. Stubbs & Company, and D. Atwood & Company, both of Boston; Hammond & Farnum, and Young Brothers, both of Essex; Charles A. Wilson, and Atlantic Fish Company, both of Brockton; and C. C. Boylan of Ipswich.

One sample of olive oil which was practically all cottonseed oil was obtained from George Armenis Company of Boston.

Two samples of butter which were low in fat were obtained from David Gold of Springfield.

There were ten confiscations, consisting of 300 pounds of decomposed mixed eggs, 220 pounds of decomposed egg yolks, 250 pounds of decomposed egg whites, 435 pounds of decomposed chickens, 400 pounds of decomposed pork loins, 55 pounds of decomposed turkeys, 600 pounds of decomposed cod tongues, 103,150 pounds of decomposed salt herring, 120 pounds of decomposed shell fish, 344 pounds of decomposed scallops, and 2,000 pounds of dried out miscellaneous fish.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of March, 1924:—572,880 dozens of case eggs, 98,488 pounds of broken out eggs, 546,050 pounds of butter, 986,787 pounds of poultry, 2,709, 453 pounds of fresh meat and fresh meat products, and 1,011,383 pounds of fresh food fish.

There was on hand April 1, 1924:—421,110 dozens of case eggs, 837,248 pounds of broken out eggs, 998,777 pounds of butter, 7,651,708 pounds of poultry, 15,975,276 pounds of fresh meat and fresh meat products, and 2,430,101 pounds of fresh food fish.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of April, 1924:—4,830,750 dozens of case eggs, 456,010 pounds of broken out eggs, 512,177 pounds of butter, 574,296 pounds of poultry, 3,182,151 pounds of fresh meat and fresh meat products, and 1,906,784 pounds of fresh food fish.

There was on hand May 1, 1924:—5,415,900 dozens of case eggs, 1,042,812 pounds of broken out eggs, 701,637 pounds of butter, 5,593,001 pounds of poultry, 14,960,823 pounds of fresh meat and fresh meat products, and 3,023,803 pounds of fresh food fish.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of May, 1924:—6,866,460 dozens of case eggs, 494,745 pounds of broken out eggs, 2,452,842 pounds of butter, 839,748 pounds of poultry, 3,215,763 pounds of fresh meat and fresh meat products, and 2,891,183 pounds of fresh food fish.

There was on hand June 1, 1924:—10,010,720 dozens of case eggs, 1,302,548 pounds of broken out eggs, 2,563,877 pounds of butter, 4,069,939 pounds of poultry, 13,759,895 pounds of fresh meat and fresh meat products, and 5,225,831 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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Hygiene for the Middle-Aged

Hygiene of Maternity and Infancy

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., COMMISSIONER

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HYGIENE FOR THE MIDDLE-AGED.

FOREWORD.

Part of this issue of The Commonhealth is dedicated to the middle-aged — the woman and the man in the forties or beyond; the tired business man or business woman; the housewife; to any other who needs it.

Consider the average man of middle age, how he lives, moves and has his being. Watch him as he goes about with rounded back and protruding abdomen. He never walks if he owns a car; if he doesn't own a car, he walks as little as possible. A heavy feeder usually and much given to bolting his meals especially at lunch time. He is always in a hurry since of course the world will stop turning if he is not constantly on the job.

Turn now to the middle-aged woman. She is often overweight due to incorrect diet and lack of exercise. She doses continually for constipation. Her nerves are on edge. A four-mile hike looks harder to her than a twenty-mile one did to her grandmother.

An exaggerated picture? A bit so, perhaps; but not so far off after all. Both man and woman are far from being even 75% efficient.

And the remedy? The succeeding pages may indicate it.

In order that the middle-aged man or woman, contemplating turning over a new leaf physically and mentally may do it with confidence and safety, the first step should be a

PHYSICAL EXAMINATION.

(Periodic Examination; Health Examination.)

The physical examination is essentially a balancing of the books of health. One finds out what his physical assets are and also what his physical liabilities (defects) are. In this commonsense way one arrives at a reasonably accurate estimate as to what must be done to put himself into good running shape.

Let us see for a moment just what such an examination would consist of. It would mean first getting a complete history of all the illnesses which this man or woman had had during the past forty years or more.

A history of certain kinds of illness is of the utmost importance in the eyes of the physician because of the association between such illness and subsequent physical states. For example if a person who is having a physical examination tells the physician that he has had recurring attacks of rheumatic fever the physician will be extra careful in his examination of the heart; and he will also be extra particular with regard to the tonsils.

After the history is obtained, then follows the physical examination itself. This should include tests of sight and hearing, nose and throat, bones and joints, glands, heart and lungs, and the nervous system. Added to these should be an estimation of the blood pressure and the simple urinary tests. It might be that the physician would find reason to want to have done certain other special examinations, such as X-ray. Exclusive of the special tests, such an examination might take in the neighborhood of an hour.

This need not be such a formidable matter after all. One's own family physician can give one a pretty thorough overhauling. There is an advantage, moreover, in having him do it in that he usually has some information to start with about his patient and what additional information he acquires can be put to good use if the patient should at any later time need his services in time of sickness.

A physical examination of this sort should be made an annual affair — a true "periodic examination." The slogan in more or less general use is a good one: "Have a Health Examination on Your Birthday." But, of course, as someone has pointed out, we don't have to wait until our birthday to have such an examination. We may profitably look on the whole matter as a form of insurance. In fact insurance companies are very much interested in having their clients have such examinations because it saves them money in the long run since it tends to make for longer life.

Now having had the preliminary overhauling, the man or woman of forty, or upwards finds himself or herself in the following situation:

(1) He has been examined and told that he is in excellent physical shape, or

(2) He has been examined and told that he has certain defects which ought to be looked after or shows certain errors of hygiene which may make for late ill health or physical inefficiency.

In the first instance he will want to know how he can keep well until a ripe old age. In the second, he will want to know how to get rid of his defects and to correct the common hygienic error which most of us commit thoughtlessly but which can be controlled by conscious effort.

Under the various subsequent headings, let us consider some of these errors of omission or commission and how to correct them and also let us run over briefly the measures which make for sturdy health in any one.

Among the very first things to be considered is undoubtedly the problem of nutrition:

Food for the Middle-Aged.

Dr. Osler once said "The platter kills more than the sword." The layman will probably think this an exaggerated statement, but it is a fact that the average physician finds numerous instances in his daily practice of serious conditions resulting from long-standing dietary errors. Usually these conditions manifest themselves to a more marked degree in the period of life known as middle age; that is, from 40 to 60 years. This is the time when the seeds of bad dietary practices, such as over-eating, eating too much sweets, eating too much meat, too rapid eating, etc., bear fruit. The individual finds he gets short of breath with the least effort, has frequent pains in the head and back, recurring attacks of indigestion, sleepless nights, etc. The list of symptoms is almost endless. There may be numerous factors causing these, but food during the earlier years of life plays an important part. It is a true statement that the food one eats influences the kind of a body one has.

Overweight. — The average individual, man or woman, begins to settle down after 40. With this settling and its accompanying enjoyment of ease and comfort, we find an increase in weight. The individual has formed certain food habits, and he tends to continue these habits of eating, especially if his appetite continues keen, but he lets up on his exercise. He tends to less and less muscular exertion, and the result is that he takes in more food than his body needs, and the surplus is stored as fat. Too much fat is a disadvantage, as it interferes with the healthy play of the muscles, causing them to deteriorate, and laying the foundation for troubles with the heart. It is easier to keep the weight from becoming excessive than to reduce it after it has gone up. Persistent gain in weight in a healthy person means he has been over-eating or exercising too little, or both, and he should make every effort to lower his food intake and increase his exercise. Exercise leads to increased burning up of the food eaten, and if food is not available, to burning up of body fat. Exercise should be mild and long continued, rather than violent; regular rather than spasmodic. As has been stated, increasing the exercise will help burn up the body fat, but it is likely to stimulate appetite, and so accurate measure and limitation of the food taken is necessary. The individual's food intake should be relatively small, the exact amount depending upon the weight desired. The person's ideal weight should be estimated in kilograms (2.2 lbs.) and he should then be permitted as a rule 18 to 22 calories per kilogram; that is, a man whose ideal weight is 154 pounds (70 kilograms) requires 70×20 calories $= 1400$ calories, which is lower than his ordinary requirement of about 2400. The following table may be used for estimating the correct weight.

Average Weight of Women in Pounds with Clothes.

AGE.	FEET AND INCHES WITH SHOES.																
	4-8	4-9	4-10	4-11	5-0	5-1	5-2	5-3	5-4	5-5	5-6	5-7	5-8	5-9	5-10	5-11	6-0
16 . . .	102	104	106	108	109	111	114	117	120	124	128	132	136	139	143	148	153
18 . . .	104	106	108	110	112	114	117	120	123	126	130	134	138	141	145	150	155
20 . . .	106	108	110	112	114	116	119	122	125	128	132	136	140	143	147	151	156
22 . . .	107	109	111	113	115	117	120	123	126	129	133	137	141	145	149	153	157
24 . . .	109	111	113	115	117	119	121	124	127	130	134	138	142	146	150	154	158
26 . . .	110	112	114	116	118	120	122	125	128	131	135	139	143	147	151	155	159
28 . . .	111	113	115	117	119	121	123	126	130	133	137	141	145	149	153	156	160
30 . . .	112	114	116	118	120	122	124	127	131	134	138	142	146	150	154	157	161
32 . . .	113	115	117	119	121	123	125	128	132	136	140	144	148	152	155	158	162
34 . . .	115	117	119	121	123	125	127	130	134	138	142	146	150	154	157	160	163
36 . . .	116	118	120	122	124	126	128	131	135	139	143	147	151	155	158	161	164
38 . . .	117	119	121	123	125	127	130	133	137	141	145	149	153	157	160	163	166
40 . . .	119	121	123	125	127	129	132	135	138	142	146	150	154	158	161	164	167
42 . . .	120	122	124	126	128	130	133	136	139	143	147	151	155	159	162	166	169
44 . . .	122	124	126	128	130	132	135	138	141	145	149	153	157	161	164	168	171
46 . . .	123	125	127	129	131	133	136	139	142	146	150	154	158	162	165	169	172
48 . . .	124	126	128	130	132	134	137	140	143	147	152	156	160	164	167	171	174
50 . . .	125	127	129	131	133	135	138	141	144	148	152	156	161	165	169	173	176
52 . . .	125	127	129	131	133	135	138	141	144	148	152	157	162	166	170	174	177
54 . . .	125	127	129	131	133	135	138	141	144	148	153	158	163	167	171	174	177

Average Weight of Men in Pounds with Clothes.

AGE.	FEET AND INCHES WITH SHOES.																	
	5-0	5-1	5-2	5-3	5-4	5-5	5-6	5-7	5-8	5-9	5-10	5-11	6-0	6-1	6-2	6-3	6-4	6-5
16 . .	109	111	114	117	120	124	128	132	136	140	144	149	154	159	164	169	174	179
18 . .	113	115	118	121	124	128	132	136	140	144	148	153	158	163	168	173	178	183
20 . .	117	119	122	125	128	132	136	140	144	148	152	156	161	166	171	176	181	186
22 . .	119	121	124	127	131	135	139	142	146	150	154	158	163	168	173	178	183	188
24 . .	121	123	126	129	133	137	141	144	148	152	156	160	165	171	177	182	187	192
26 . .	123	125	127	130	134	138	142	146	150	154	158	163	168	174	180	186	191	195
28 . .	125	127	129	132	135	139	143	147	151	155	159	164	170	176	182	188	193	198
30 . .	126	128	130	133	136	140	144	148	152	156	161	166	172	178	184	190	196	201
32 . .	127	129	131	134	137	141	145	149	154	158	163	168	174	180	186	192	198	203
34 . .	128	130	132	135	138	142	146	150	155	160	165	170	176	182	188	194	200	206
36 . .	129	131	133	136	139	143	147	151	156	161	166	171	177	183	190	195	202	208
38 . .	130	132	134	137	140	144	148	152	157	162	167	173	179	185	192	198	204	210
40 . .	131	133	135	138	141	145	149	153	158	163	168	174	180	186	193	200	206	212
42 . .	132	134	136	139	142	146	150	154	159	164	169	175	181	187	194	201	208	214
44 . .	133	135	137	140	143	147	151	155	160	165	170	176	182	188	195	202	209	215
46 . .	134	136	138	141	144	148	152	156	161	166	171	177	183	189	196	203	210	216
48 . .	134	136	138	141	144	148	152	156	161	166	171	177	183	190	197	204	211	217
50 . .	134	136	138	141	144	148	152	156	161	166	171	177	183	190	197	204	211	217
52 . .	135	137	139	142	145	149	153	157	162	167	172	178	184	191	198	205	212	218
54 . .	135	137	139	142	145	149	153	158	163	168	173	178	184	191	198	205	212	219

The overweight individual should have a diet materially below his needs, in order to burn up the body fat. Sufficient protein-containing food, such as milk, eggs, fish, cheese, and meat, should be supplied to prevent the body protein from being destroyed. About 300 of the daily calories should be supplied by these protein-containing foods. The following list of calorie equivalents may be used for estimating the food needs.

Caloric Value of Average Servings of Foods.

tsp. — teaspoonful.
tbsp. — tablespoonful.
h. — heaping.
med. — medium.
cu. — cubic.
in. — inch.
c. — cup.

Food.	Weight, Size or Amount.	Caloric Value.
Fish, Meat, and Eggs.		
Fresh fish	2½ oz.	100
Canned salmon	1 h. tbsp.	50
Canned tuna fish	1 h. tbsp.	50
Oysters	6	50
Fresh lean meat	1½ oz.	100
Bacon	2 med. slices	100
Eggs	1	100
Soups.		
Cream soups	1 c.	200
Clear soups	1 c.	30
Dairy Products.		
Butter	1 tsp.	33
Cheese:		
American	1 cu. in.	100
Cream	1 cu. in.	100
Cottage	1 h. tbsp.	50
Whole milk	1 c.	160
Top milk	4 tbsp.	100
Cream (thick)	2 tbsp.	150
Skimmed milk	1 cup.	90
Malted milk	2 h. tsp.	100
Vegetables.		
Asparagus	5 stalks (5 in. long)	25
Beans:		
Baked	2 h. tbsp.	100
Lima (fresh)	2 h. tbsp.	50
String	2 h. tbsp.	13
Beets	2 small	50
Cabbage (shredded)	½ cup.	10
Carrots	2 h. tbsp.	50
Cauliflower	3 h. tbsp.	13
Celery	2 sm. stalks	5
Lettuce	4–5 leaves	10
Macaroni (plain)	¼ cup	25
Macaroni and cheese	2 h. tbsp.	50
Onions	2 med. size	50
Parsnips	2 h. tbsp.	50
Peas	2 h. tbsp.	35
Potatoes:		
Sweet	1 med.	200
White	1 med.	100
Mashed	2 h. tbsp.	50
Creamed	2 h. tbsp.	65
Spinach	2 h. tbsp.	13
Squash	2 h. tbsp.	50
Succotash	2 h. tbsp.	75
Tomatoes:		
Canned	⅓ cup	20
Fresh	1 med.	50
Turnips (mashed)	2 h. tbsp.	35
Fruits (Fresh).		
Apple	1 large	100
Banana	1 large	100
Cantaloups	¼	25
Grapefruit	½	100
Grapes	1 med. bunch	100
Lemons	1 large	33
Orange	1 large	100
Peach	1 med.	33
Pear	1 med.	50
Plums	2	50
Raspberries	2 h. tbsp.	25
Strawberries	2 h. tbsp.	25
Fruits (Dried).		
Dates	4 med.	100
Figs	2 med.	168
Prunes	4 med.	100
Raisins	1 tbsp.	25

Caloric Value of Average Servings of Foods— Concluded.

FOOD.	Weight, Size or Amount.	Caloric Value.
Fruits (Cooked).		
Apple sauce	2 h. tbsp.	100
Baked apple (without sugar)	1 med.	100
Cranberry sauce	1 h. tbsp.	50
Canned peaches	2 halves and 3 tbsp. juice	100
Canned pears	3 halves and 3 tbsp. juice	100
Canned pineapple	1 slice and 3 tbsp. juice	100
Rhubarb sauce	2 h. tbsp.	50
Bread and Crackers.		
White	1 large slice or 2 slices 3x3½x½	100
Whole wheat	1 large slice or 2 slices 2½x2¼x¼	100
Rye	Same	100
Cornbread	1 slice	100
Roll	1 med.	100
Graham crackers	2	100
Uneeda biscuits	2	50
Cereals (Cooked).		
Farina	½ c.	67
Hominy	½ c.	62
Cornmeal	½ c.	75
Rolled oats	½ c.	50
Rice	½ c.	67
Cereals (Uncooked).		
Shredded Wheat	1	100
Grapenuts	3 tbsp.	100
Cornflakes	½ c.	40
Puffed Rice	⅓ c.	25
Nuts.		
Peanuts	6 double	50
Walnuts	2 halves	25
Desserts.		
Cakes:		
Sponge	1 slice 2x2x1″	100
Cup	1	75
Gingerbread	1 slice 2x2x1″	100
Cookies, molasses	2	100
Ice cream	2 h. tbsp.	200
Puddings:		
Bread	2 h. tbsp.	200
Custard	2 h. tbsp.	100
Rice custard	2 h. tbsp.	75
Fruit tapioca	2 h. tbsp.	100
Indian	2 h. tbsp.	200
Junket	½ c.	100
Cornstarch (plain)	2 h. tbsp.	100
Sweets.		
Chocolate	1½x1x⅛	50
Jelly	1 tbsp.	100
Honey	1 tbsp.	100
Granulated sugar	1 tsp.	17
Karo	1 tbsp.	100
Miscellaneous.		
Olive oil	1 tbsp.	100
Peanut butter	1 tbsp.	100
White sauce	¼ c.	100
Cocoa (½ milk)	1 c.	150
Egg nog	1 c.	200
Lemonade	¾ c.	50
Grape juice	¾ c.	150

Foods very high in fuel value; *i.e.,* fats, and dishes containing much fat should be avoided, and bulky food of low fuel value used to satisfy the appetite. Clear soup should be used in place of creamed soup; butter and cream cut down to the lowest; sugar used sparingly; candy avoided. Green vegetables of all kinds, raw or plainly cooked, *i.e.,* cabbage, celery, lettuce, spinach should be eaten freely. Breads, cereals, and other starchy foods may be taken in small quantities. Plenty of water may be taken.

Suggestive Meals for a Day.

Breakfast.

Orange	1.
Eggs	2.
Graham toast	2 slices.
Clear coffee	1 cup.

Lunch.

Bouillon	1 cup.
Soda cracker	1.
Broiled cod	1 large serving.
Spinach	1 serving.
Boiled potato	1.
Apple	1.

Dinner.

Roast beef	1 serving.
Baked potato	1.
Tomato and lettuce salad with vinegar	1 serving.
Grapefruit	½.
Clear coffee	1 cup.

Underweight. — Many men and women of middle age belong to the group of thin wiry underweight individuals who go constantly on their "nerve." They have always been very active, and their body machinery which has been working at full speed begins to slow down and show signs of wearing out. Such an individual tires very quickly, and feels the strain of daily life greatly. The very thin person usually has more muscle in proportion to weight than his fat brother and he also has more surface exposed, both of which facts increase the need of fuel somewhat. A store of body fat is desirable as reserve fuel. This can only be gained by taking food in excess of the daily needs; *i.e.,* persistent over-feeding without indigestion of a well-balanced diet. Rest is important also, since an overtired condition of the body is often a contributing cause to the condition of underweight. As for foods, butter, cream, bacon, and salad dressing can be taken liberally to advantage. Vegetables can be served with cream sauce or as salads with mayonnaise dressing. Cocoa or chocolate made with milk; custards and creams of various sorts, are means of adding to the fuel value of the diet. All foods should be in an easily digested form.

Suggestive Meals for a Day.

Breakfast.

Orange	1.
Ralstons	¾ cup plus 4 dates.
Top milk or cream	½ cup.
Sugar	1 tsp.
Poached egg on toast	1 plus ½ tbsp. butter.
Coffee with cream and sugar	1 cup.

Mid-morning.

Glass of milk or milk shake.

Lunch.

Corn chowder	1 cup.
Crackers	6.
Lettuce salad with French dressing	1 serving.
Bread and butter	2 slices.
Tapioca cream	1/3 cup.

Dinner.

Roast beef	1 serving.
Baked potato	1 plus 2 tbsp. gravy.
Creamed cabbage	1 serving.
Bread and butter	2 slices.
Baked apple and cream	1.

Correct Weight. — Ideally an individual should maintain normal weight for his height, accomplishing this by making his daily food intake correspond to his body needs for energy. There is a minimum amount of food necessary to meet the so-called basal requirement; *i.e.,* energy required for the work of maintaining internal body processes, as circulation, respiration, digestion, etc., which are going on constantly, whether the body is at rest or active. Beyond this basal requirement the activity of the individual determines the amount of food necessary. An approximate measure of the energy required can be figured out from the table[1] below.

Occupation.	Calories per Individual per Day.
In bed 24 hours	1,600 to 1,800 calories
At rest but sitting most of day	2,000 to 2,300 calories
Work chiefly done sitting	2,200 to 2,800 calories
Work done standing or walking	2,700 to 3,000 calories
Work developing muscular strength	3,000 to 3,500 calories
Work requiring great effort	4,000 to 5,000 calories

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[1] This table taken from Rose's "Feeding the Family."

Sedentary Worker. — The sedentary workers, *i.e.,* writers, teachers, draftsmen, bookkeepers, shoemakers, tailors, or others who sit at their work require little more food than would be needed if they were sitting at rest. They need food which will be taken care of with the least tax on the digestive system. Sufficient bulky food and plenty of water to counteract any tendency to constipation. Some vigorous exercise each day would be beneficial for their general health.

Suggestive Meals.

Breakfast.

Orange	1.
Rolled oats	1 cup.
Top milk or cream	½ cup.
Omelet	1 serving.
Buttered toast	2 slices.
Coffee	1 cup.

Lunch.

Baked macaroni and cheese	1 serving.
Lettuce with French dressing	1 serving.
Bread and butter	2 slices.
Apple sauce	1 serving.
Coffee	1 cup.

Dinner.

Hamburg steak	2 small balls.
Tomato sauce	2 tbsp.
Cabbage salad	1 serving.
Bread and butter	2 slices.
Peach tapioca and cream	1 serving.

The moderately active individual who makes active use of some part of his body while sitting, standing, or walking; as a carpenter, mail carrier, house worker, etc., requires the same type of food as the sedentary worker, but in larger quantities. The day's meals for everyone should include: *one pint of milk, one vegetable beside potato,* preferably fresh and green, *some fruit,* raw more desirable, *whole grain cereals and bread, at least 6 glasses of water.*

Food Cost.— Cost for most people is a large factor in the food problem. One-half to one-fourth of the income has to be devoted to buying food. Fortunately beyond a certain minimum there is no vital connection between nutritive value and cost. Some of the most nutritious foods are the cheapest. It is purely a matter of wise selection. The green vegetables listed as a desirable part of the diet vary in the degree of nutriment they provide. Spinach is one of the most valuable because it provides the necessary vitamins and minerals. It has a long season and its first cost is not high as compared with some others. Cabbage is another economical green vegetable, rich in vitamins and minerals. It is available during the winter when other fresh vegetables are hard to get. Shredded raw and used as a salad it is most valuable for adults. In the spring and summer beet greens, and dandelions, are most economical. Lettuce can be gotten all the year, in most cities and large towns; but in winter it is so expensive that for many people a substitute must be found. Cabbage makes a ready substitute. Tomatoes are a valuable vegetable, as they are rich in vitamins; and because of the cheapness of the canned product, are available to most people all the year round. Also the canned tomato seems to contain vitamins in as potent a form as the fresh. Dry vegetables are cheapest of all, as far as first cost; but up to date the feeling is that drying destroys the vitamins and therefore lessens the nutritive value. As was stated, fresh raw fruit is preferable because of its vitamin content. Apples are practically the most economical of raw fruit, and can be obtained quite inexpensively excepting for a short period of time during the winter. Bananas are also a fairly economical fruit, and if eaten when they are thoroughly ripe do not cause digestive disturbance. Oranges are a more expensive fruit, but are excellent when their expense does not make them prohibitive. Canned fruits, like canned vegetables, have the vitamin content somewhat lessened by the canning process, but as far as the other food nutrients which they contain are concerned, they are good. Dried fruits are an excellent source of iron and may be used when fresh fruit is prohibitive in cost. Rolled oats is the most economical of the cereals, providing the greatest nutriment for the least expenditure of money. The puffed and flaked cereals are the most expensive, giving the least return for the money.

Finally we may say that the best food for middle age is the same as the best food at any other earlier time of life. The points to remember are: to have enough food to meet the body needs, taking care that it is neither more nor less; to have simply prepared meals at regular intervals during the day; to take care to allow sufficient time for meals in order that they may be properly digested. Meat should be used only once a day and special emphasis should be placed upon the use of vegetables, milk and fruit.

Closely allied to nutrition is the problem of Mouth Hygiene. The alliance between the two is peculiarly close since without a proper denture chewing of food is imperfect; and on the other hand the food of the prospective mother and young baby to a very great extent determines the sort of teeth the older child and the adult are going to have. Hence a brief discussion is now in order about

THE TEETH AT FORTY.

It is strange how few people realize the value of their toothbrush and the necessity of frequent dental examinations. The teeth must be kept clean and free from decay in order to best carry out their work of giving form and expression to the lower half of the face, and providing an efficient masticating machine for the body. Food must be chewed and the teeth must be kept in good condition in order to do that work well. Adults especially should make an effort to have their teeth well cared for, not only because of the benefit they will derive by doing so, but because it is they who must set an example for the younger generation.

Daily care is most important. First of all everyone should have his own toothbrush. It should be small, the head, or that part holding the bristles not measuring more than 1¼ inches in length; the bristles should be fairly stiff and the ends of the tufts rounded. A tooth powder or paste can be used, but a normal salt solution, ½ teaspoon of salt in a glass of water, is just as good. At least two minutes must be spent at each brushing, an up and down stroke being used. Dental floss is the only means by which the spaces between the teeth can be cleaned and should be used as regularly as the toothbrush. After using, the brush should be carefully rinsed, wiped dry and put in a clean place. Salt sprinkled on the bristles will help to keep them stiff. As soon as a toothbrush becomes soiled or matted, get a new one; everybody should have at least two a year.

Sluggish, badly colored gums are often caused by an insufficient blood supply to them. Gentle massage with the tip of the finger will help relieve the condition.

Artificial teeth should also be well cared for. It is necessary to brush them regularly with a stiff brush and any cleansing agent such as Bon-Ami, Sapolio, etc. If they are difficult to clean because of tartar formations or other deposits, keeping them in a weak solution of vinegar will make the cleaning process easier.

Home care alone is not a sufficient safeguard against decay, however; the services of a dentist must be employed. At least once a year the teeth should be carefully examined. This precaution will enable a dentist to find any abnormal condition before it grows large enough to cause serious trouble. Lumbago, rheumatism, kidney trouble, heart trouble, nervous disorders, and many other illnesses have been traced to long standing cases of uncared-for teeth. Form a habit of having your teeth examined regularly; if any tooth should ache or be particularly sensitive, have it X-rayed. Many conditions, such as abscesses, impacted teeth, improper root fillings, etc., can be detected only with its aid. Periodic cleanings by the dentist or dental hygienist are also necessary, because they only can remove the tartar that ordinary brushing will not. This tartar if allowed to remain on the teeth a certain length of time will cause trouble, very often pyorrhea.

Eating natural tooth-cleansing foods will also help to keep the teeth in good condition. These are celery, raw cabbage, raw carrots, whole grain breads and cereals. A reduction of sweets would also be of advantage. Remember that there is the equivalent of 4 teaspoons of sugar in 1 apple, 2 oranges, 1½ figs, 3 dates, 1 banana, ¼ cup raisins, 2 pears, and many other foods, and you will see that the body does not need the artificial sweets found in candy, cakes, ice cream and cold beverages.

These measures of caring for the teeth are neither many nor difficult; they can be carried out by simply forming regular daily habits and seeking the advice of a dentist at regular intervals.

While dental defects constitute the commonest form of physical defect in the United States, there are other organs which are frequently impaired. For example there are the eyes.

Care of the Eyes (Adult).

Of the forty-two million men and women employed in the United States, twenty-five million have defective vision, the Hoover report of waste in industry disclosed.

Eyestrain is the result of using defective vision. Eyestrain gives symptoms of blurring, pain in the eyes, headache, redness of the eyelids, irritability and a long train of less common and less evident troubles.

Eyes are defective commonly in two ways. First they are out of focus just as a camera lens may be out of focus and give a blurred, vague picture. Second the lens of the eye may be irregular giving a distorted image. Both these faults can be corrected by glasses which compensate for defects found in each individual.

The moving picture industry has taken advantage of the fact that out of every hundred impressions which reach the brain, eighty-seven come through the eye, seven through the ear, three through the touch, two through smell and one through taste.

We see, then, how dependent we are on our eyes in everyday life.

How may we guard our eyesight? When we have determined that our eyes are normal, we may still abuse our eyes in several ways.

It is easier to see distant large objects than small near ones. Constant or continued close work in poor light is the next commonest abuse to neglect of defects.

Often the trouble with the light is that it strikes the eye rather than the object (glare) or the direction of the light on our book is such that the page is not well illuminated. We can usually correct this easily by remembering that the light should come over the shoulder or from above, never from in front.

How bright must a light be to make seeing easy? The requirements for efficient lighting, the Hoover report states, are —

1. Light enough to see by to do work — too little or too much produces discomfort.
2. Diffusion to avoid sharp contrasts and deep shadows.
3. Elimination of glare.

For office work, the Massachusetts Code gives four to eight foot-candles, about as bright a light as four to eight candles at one foot distance.

The filament of a modern electric light is so brilliant that it should not be seen by the eye, for glare and discomfort follow and seeing is markedly reduced. Placing of lights behind or above, shading lights and finally diffusing globes are the methods of reducing glare.

Summary. — Care of the eyes, then, consists of finding out if they are normal; if not normal, having the defects corrected to normal by suitable glasses. Re-examination at least every five years and especially after forty years of age should be made.

Observe the simple rules of right use of the eyes. Do not face the light when working or reading. Have light enough without glare to see comfortably.

Now let us turn for a moment to a group of items in personal hygiene which are more general in nature but which are of great importance to healthful living.

BATHING.

We bathe chiefly to look clean and to "feel clean." This, however, is not the only function of bathing, though a very necessary one. A bath, through its effect on the nerves of the skin and thence on the nervous system in general, may be stimulating or sedative. The warm bath represents the latter effect, the cold bath the former. Because of the difference in their purpose, warm baths should be taken at night, cold ones in the morning.

The middle-aged person, unaccustomed to cold bathing must experiment carefully before undertaking it. Many persons do not react well to cold baths and so should not take them. A poor reaction is shown by chilliness and blue lips and finger nails. A good reaction is indicated by a pleasant glow of the skin and a general feeling of well-being. For the poor reactors a cool bath is better, using a sponge followed by a brisk rub down; or even a tepid bath followed by a dash of cool water and the rub down. It is safer to begin the habit of cold bathing in summer; it can then be carried over into the winter.

It goes without saying that during the summer months nothing can equal ocean bathing for those fortunate enough to share in its pleasures. This ideal form of bath combines the advantages of the salt water, the open air and sunlight, and healthful exercise and play.

CLOTHING.

It is hard to discuss clothing adequately in anything short of a volume, but a few guiding points may be touched upon. In our New England climate with its fifty-seven varieties of weather the wise adaptation of clothing to comfort and safety requires a good deal of thought and judgment.

First there is summer clothing. Folks are now pretty well adjusted to light clothing — light in weight and in color. Frequent changes of underclothing are essential both for comfort and for cleanliness. Many of the skin infections so common in summer are due to lack of care in this regard.

In winter, the clothing should be of a sort which allows for the tremendous changes of temperature which have to be met by the person who goes from a steam-heated apartment to a cold street and then to a steam-heated office. Clothing satisfactory for the street is not satisfactory for the average house or office. The tendency always has been for the middle-aged person to dress too warmly with flannels and mufflers. This is still true of men. Women on the other hand, seem to have gone to the other extreme in many instances, although it is safe to say that on the whole both men and women dress more sensibly than they ever did before. So far as winter dressing is concerned the important point for indoor workers to remember is to have the ordinary clothing of a weight suitable for indoor comfort. The addition of light or heavy outer coat or furs will take care of the cold of out of doors.

A word should be said here about the temperature of our homes and offices. Almost invariably the temperature is too high and the air too dry, resulting in discomfort, lack of pep and prevalence of colds and sore throats. A temperature of 68° F. or less with air in motion is far more healthful than the higher temperatures so prevalent. There should be some method provided to overcome the excessive dryness of the average room.

ELIMINATION.

It would hardly be fitting to overlook a subject which is agreed by all to be of first importance in spite of the exaggerations which surround it. Faulty elimination of the waste products of the body seems to be responsible for much ill health, especially amongst the middle-aged.

Elimination of the body's waste products is brought about in a number of ways: through the skin, the kidneys or the lungs. We ordinarily think first of the intestinal tract, however, when faulty elimination is mentioned.

Prevention of Constipation. — Regular action of the bowels depends on several factors. One is the establishment of absolute regularity as to time of evacuation; another is diet including the use of water; a third is bodily exercise.

A regular time for evacuating the bowels is, as has been said, an essential factor. Under modern conditions, especially urban conditions, first thing in the morning seems to be the most practicable. The stimulation coming from drinking a glass of water, of breakfast and of moving about after the night's inaction seems necessary in most cases. Some people find a second movement after dinner at night to be both possible and beneficial. One may have a bowel movement daily and yet be constipated since the movement does not represent the discharge of all the waste products.

The constipated person of middle age is usually the sedentary worker whose posture indicates that he has poor muscular tone and has sagging of the intestinal tract. His diet is apt to run too much to rich foods with too little lettuce, cabbage, spinach and such vegetables leaving a residue. "Bulky" foods are necessary to stimulate the intestines to action. The remedy for this state of affairs is of course obvious: the diet should be changed. Sometimes it is necessary to go a bit further and eat for a while at least some coarse food like cooked bran once or more a day. Many palatable preparations of prepared bran are on the market. Water should be taken freely — a glass on getting up in the morning; a glass with each meal; a glass between meals; and a glass before going to bed. Laxative drugs should be avoided since in the long run they are harmful. Their use should be considered an emergency one, so to speak. Special exercises for improving posture and toning up the abdominal muscles are of the utmost importance.

We still have several very important subjects to discuss before we have covered with even an approximate degree of completeness, the hygiene of the middle-aged. Physical education, recreation, mental hygiene; the life which does not reckon with these has a poor chance of being successful. First, a word as to physical education and its handmaiden, recreation or play.

Physical Bankruptcy and how to Prevent it.

Most of us have a thought for the proverbially rainy day, an expression we use when we lay by funds which are to serve us when need arises. We do not think much of the fellow who lives from hand to mouth. We aim to have a reserve or bank account upon which we may draw, either to bridge over a momentary slack, or to permit us to be extravagant socially. Not until man looks upon physical fitness, or in a broader sense health, in terms of abundance, will he derive that sense of security which the man with the bank account has, when the day of need arrives.

The whole question of well-being is one which depends upon the behavior of the individual, his willingness to put into practice the things in which he has been theoretically instructed and which supposedly he has been taught to practice. The most hygienic and perfect environment must fail if the individual in that environment refuses to conduct himself in keeping with the best that science has made common property. Man is no longer justified in considering the physical misfortunes which may befall him as Fate. Fatalism belongs to the dark ages.

Heredity may or may not be kind to us with endowment of physical qualities. Whatever we bring into the world with us as health endowment we must individually earn or re-earn in order to really possess it. The general conception of good health is merely that condition when we are not ill, whereas it should be conceived as a condition where health is possessed in abundance — an abundance which will manifest itself in a naturally tinted complexion, the keen eye, the elastic step, graceful bearing and radiating health. Such an abundance will permit of occasional extravagance wherever necessity demands it.

There is no short cut toward health and physical fitness in abundance. Every individual has to earn it in order to possess it. There is no secret about physical fitness, never has been, and the physical culturist who, through his or her alluring advertisements, promises to work a miracle and make the lean fat or the fat lean, the short tall and what not else, is but preying on those who want to achieve without effort. It can't be done.

Home exercises, spendid and effective as they may be in themselves, lack the social element and are less likely to be carried to the point of exertion, which I repeat, is essential, than the exercises taken in companionship with others.

We sleep sounder when we are really physically tired, a feeling which comes after exertion. We too often mistake feeling weary and sleepy for feeling physically tired. We may become weary from overworking mentally, and sleepy either from a monotonous situation or stuffy air, but we get the good effective tired feeling only through physical exertion. It is the man who is weary and mainly sleepy who does not find ready sleep upon retiring. The physical exertion, though many times entered into reluctantly, serves as the best remedy. To suffer from sleeplessness certainly is no rare experience for the busy professional or business man or woman.

Both man and woman have to learn that it is far pleasanter and less costly to voluntarily set aside a definite time for such energizing recreation, than to take a long chance to get along without it, and then find themselves forced to lay up for repairs. Once physically bankrupt, it takes a long and tedious time to become solvent again.

Set aside a definite time for this purpose. If possible join a class where under good leadership a well-balanced program is carried out and where following the exertion there is opportunity for the refreshing shower. Make a beginning at least by stretching consciously to full height a number of times a day. Rise up high on your toes, draw in the abdomen, lift the chest high, get your neck from between the shoulders and aim to touch your head to the ceiling. This will give you the feel of what you might be through the investment of definite time and energy toward permanency of such set up. In your community urge the use of the school equipment to its fullest extent. In brief it's entirely your job, for your own personal benefit by your own personal exertion. It's up to you. " The weaker the body the more it commands, the stronger the body the more it obeys."

Play at Forty (and Over).

" Play is giving an outlet to the stream of what people are," says Joseph Lee who, it may be said, knows more about the effect of play on a human being, young or old, than any person you or I can name. He goes on to say, " Life in the last analysis is a sporting proposition." It is a great game to be played through to a finish by the individual of true sporting blood.

The play spirit, which is the whole of life to a child, is still alive in those of us who have reached maturer years — alive in spite of our best efforts to quell it — like Uncle William who every year makes it his conscientious duty to escort small Willie to the circus entirely in the interests of Willie's safety. Why do we feel thus obliged to masquerade as serious-minded dullards when in reality we have yet within us a genuine love for play which cultivated might afford us untold pleasure and yet loose from within us a spirit which is veritably life itself?

According to Dr. Richard Cabot there are two occasions and two only during each twenty-four hours when dead seriousness has a legitimate place. The first is when the body machine has not yet got to running in the morning, the other when it is running down as we fall asleep at night. At all other times, entire seriousness is unpardonable dullness. Why be a bore?

When we stop playing, we stop growing; when we stop growing, we stop living.

Play is something of a will-o'-the-wisp. Pursue it for health's sake or for spiritual growth or in duty's service and it vanishes. Play has been transformed into work, pleasurable work it may be. But the play spirit, the joy of doing the thing for its own sake, is gone.

On the other hand, the work we love to do ceases to be duty, and play, the will-o'-the-wisp, alights on our shoulder once more, cheering us on in the task which we thought was work but in which we suddenly find the pure joy of the play spirit.

" There are homes that make you feel older the moment you enter their doors — and there are others that glow with the spirit of youth " and of play. These are the homes which are cultivating and encouraging play, not merely permitting it as a necessary accompaniment of troublesome youth. These are the homes in which father and mother as well as the youngsters know how to play, know what it means " to be a good sport " and " to play the game " in the home life as on the ball field. Team play is no less vital to happy wholesome family life than to a football game. Bless the family that has found this out! and the neighbors too!

There may be families in which the elders feel the stirring of the impulses of play — of life, but there are no longer children to show them the forgotten road to the world of play and they are at a loss to find their way back to the familiar turn in the road where they left the path of play and took the highway of drudgery. To any such who now read these lines, we would suggest a few cardinal rules for successful play:

There must be *competition* — though it be only with oneself or one's past record as in a game of solitaire or a crossword puzzle.

There must be action and a *thrill* — the thrill of looking toward possible conquest or the thrill of growth in power to do.

There must be *effort* — physical, mental or both. It is making something, not having something, which brings the real joy of life.

There must be *team play* — perhaps the best test of maturity is the ability to sink oneself in a common effort for a common good.

There may be an appeal to the rhythmic instinct or to sheer love of beauty of form or color.

Play may mean the use of the hands for greater and greater skill. Think what this effort may bring to the routine tasks of life.

It may mean the use of big muscles that sends swift blood pulsing through the veins.

When did you last feel an impulse of this sort to play in the midst of your daily humdrum duties? You probably suppressed it promptly when you did as a sensation quite unworthy of a superior person of mature age like yourself. The next time, why not yield to the impulse and instead of disclaiming a true instinct for play which is the expression of all the spontaneous life left within you try it out in a game which will test your best mettle. Let there be effort in your game. Don't be content with parchesi if you have a mind for chess and don't let yourself off with croquet if your town provides a tennis court. By the way, have you used your best effort to see that such opportunities for outdoor games are available to all in your town?

If you have an occasional Saturday afternoon or a Sunday (after church, of course) come out into the country. There we can find more toys than are in all of the toy shops in creation. Toys for children of all ages. We rustle the brown leaves as we kick them up in billows before us, refreshing childish memories as we run pell-mell down an oak-covered slope and we skim flat pebbles across the quiet pool and try to knock off the stray stick lodged by springtime's breaking ice on the peak of yon gray rock.

In a truly venturesome mood, we may cautiously select a birch sapling of ampler girth than the one we used to pick out and, wriggling and climbing our way toward its swaying tip, ride gently to earth on its slender length.

Then there are the hills to be conquered as we plunge into the woods through clinging undergrowth or tread a soft mossy path. There are some pretty big ones in this old State of ours. There is one not fifteen miles from Boston from whose summit may be seen the purple wavy line of the hills in New Hampshire and Vermont beyond the rugged outlines of our own rocky hills, with glimpses of blue ocean to eastward.

If there are no half holidays or if the morning's work has been strenuous and your inclination is for quieter recreation, even so there is music and there is art if you have the knack of making some artistic bit of household decoration. And there are the thousand and one games from solitaire alone at home to basket ball or hand ball on the field of activity.

You thought you were through dancing, but your love of rhythm, your instinct to keep step with good music is as strong today as when you were twenty, is it not? Have you ever tried folk-dancing? You answer, "That is well enough for the young folks." It is well enough for old folks, too. Mr. Lee says, "The age to learn to dance is the age you happen to be but the best age for the use of this accomplishment is past fifty." For then it is that muscles and joints tend to stiffen a bit if not warmed up occasionally by mildly vigorous use.

So if we who are already on the shady side of forty will look about us, we may find on every side some means of keeping the play spirit, the spirit of youth, alive; of cheating old age; of finding common ground with our younger folk by simply allowing "the stream of what we are" to find its outlet in the play activities we used to love but the path to which we have allowed to become overgrown with weeds. Let us take our first chance to turn back and find the old path which returns to the eternal joy of living.

PLAYGROUND AND RECREATION FUNDAMENTALS.

Twenty-one fundamentals in Community Recreation have been prepared by the Playground and Recreation Association of America on the basis of its eighteen years' experience. The fundamentals are as follows:

1. That in nearly every community with a population of 8,000 or more, there is need of a man or a woman who shall give full time to thinking, planning and working for the best possible use of the leisure hours of men, women and children.
2. That community leisure time programs should continue throughout the entire twelve months of the year.
3. That it is the responsibility of the entire community to maintain recreation opportunity for all the citizens and that there ought, therefore, to be, as early as possible, support of the recreation program through public taxation under some department of the local government.
4. That there should be in every state a home rule bill which will permit the people of any city or town to make provision under their local government for the administrations of their community recreation.
5. That there is need in every community, even though the municipal recreation administrative body be most effective, for private organization of citizens in their neighborhoods to make the fullest use of the facilities provided, to make sure that what is being done is meeting the deeper needs of the people of the neighborhood.
6. That the emphasis ought to be not only on maintaining certain activities on playgrounds and in recreation centers but also and definitely on the training of the entire people in leisure time activities, so that within the home, in the church and throughout all natural, human relationships there shall be the best opportunity for wholesome good times.
7. That the purpose in training children and young people in the right use of leisure ought not to be merely to fill up the idle hours but also to create an active, energetic, happy citizenship.
8. That even though the beginning of a city or town recreation program be children's playgrounds, other features ought to be added progressively from year to year until music, dramatic activities and discussion of public questions, training for more intellectual uses of spare time, and other valuable activities have been included, so that all ages and all kinds of people may find vital interest.
9. That every boy and every girl in America ought to be trained to know well a certain limited number of games for use outdoors and indoors, so that there will never be occasion for any boy or any girl to say that he cannot think of anything to do.
10. That most boys and girls should be taught a few simple songs, so that, if they wish, they may sing as they work or play.
11. That all employed boys and girls should have opportunity in their free hours to enjoy companionship and wholesome social life.

12. That through the community recreation program every boy and girl should come to appreciate the beautiful in life.
13. That adults, through music, drama, games, athletics, social activities, community and special day celebrations, should find in their common interests the opportunity for a common community service.
14. That every new school built ought to have a certain minimum amount of space around it provided for the play of the children.
15. That nearly every new school building ought to have an auditorium preferably on the ground floor and should be so constructed that it is suited for community uses.
16. That if a suitable meeting place for community groups is not available in the schools or elsewhere, a community building should be provided through community effort.
17. That each child, under ten years of age, living in a city or town should be given an opportunity to play upon a public playground without going more than one-quarter of a mile from home.
18. That every community should provide space in sufficient area for the boys of the community to play baseball and football.
19. That every community should provide opportunity for the boys and girls to swim in summer and, as far as possible, to skate and coast in winter.
20. That every boy and every girl ought to have opportunity, either on his own home grounds or on land provided by the municipality, to have a small garden where he may watch the growth of plants, springing up from seeds which he has planted.
21. That in new real estate developments of five acres or more, not less than one-tenth of the space should be set aside to be used for play just as part of the land is set aside for streets.

We are going to close this necessarily sketchy outline of the principles underlying good health by a brief reference to the most important aspect of all. A sound mind: a sound body. These two cannot be separated.

MENTAL HYGIENE OF MIDDLE AGE.

Mental poise is the most desirable possession or acquisition of middle age.

The equilibrium of early maturity, occupied with its many interests and steadied by its responsibilities, too often gives place at fifty or thereabout to anxieties and frets. Our interests are not so absorbing and our responsibilities not so compelling and we have time and disposition to cultivate our eccentricities.

We must hold the mirror up to the ego and if equanimity be lacking our problem is to regain or obtain it.

Faulty mental habit stands in our way and the fault cannot be cured by mere exercise of the will. It is quite useless to say "I will not fear or fret; I will control my irritability and ready anger; I WILL BE CALM!" This is the strenuous method of him who, with taut nerves and tense muscles, says he will FIGHT FOR PEACE.

Our method of attack should rather be the indirect one of substitution of another thought for the insistent thought; substitution of a new interest for the compelling interest. We must reason ourselves out of bad mental habits into better ones.

It may be irritation with the doings of others that disturbs our peace. If we analyze our irritation, how often we find that it is not the fact or the act itself "but our idea of the fitness of things that determines the degree of our annoyance," and "that our annoyance is proportional to our resentment."

(Walton.) Facing each minor annoyance in its turn we may say with Marcus Aurelius "what is there in this that is intolerable and past bearing?" "Begin the morning," he urges, "by saying to thyself, 'I shall meet with the busybody, the ungrateful, arrogant, deceitful, envious, unsocial. All these things happen to them by reason of their ignorance of what is good and evil.'"

When sights and sounds distress us if we realize that it is not the sight or sound but our own idea of its inappropriateness that is upsetting, can we not turn our thoughts into other channels? "Why eat nettles — forgetting that only one animal does that?" Certainly we cannot expect the home or the office to adapt itself entirely to our preconceptions.

The compelling interest which constitutes the faulty mental attitude may be an undue solicitude for one's health, which we term hypochondria. Most often this takes the form of anxiety about one's digestion or one's sleep. We bemoan our lack of appetite and watch our digestive processes with a magnifying glass. We assure ourselves that we cannot sleep if there be light or noise; we carry our problems to bed with us and wake to wrestle with them in the night. We "churn the bedclothes," and give nature no chance.

Again it is our preconceptions that must be changed, submitting ourselves to the rule of reason.

We must keep good cheer, lend a ready ear to hope, cultivate good friends and varied interests, and regard the steady job and ardent hobby as best aids to equanimity and happiness.

As a summary of what we have tried to say in the preceding pages we offer the following rules of health to the consideration of all who wish to live well and die happy.

RULES FOR HEALTHFUL LIVING.

1. *Food.* — Milk; cereals; vegetables every day including leafy ones such as lettuce, spinach, beet tops, to get the necessary vitamins; fruits every day; eggs; meat in moderation; sweets in moderation; 8 glasses of water a day.
2. *Posture.* — Stand and sit straight; stand tall, keep head up, chin in, chest out, abdomen in, back straight, shoulders back; walk largely on balls of feet, with feet straight — not turned out.
3. *Exercise.* — Enough every day to sweat freely. Walk 3 miles a day if you can't do anything better. Play in the open air.
4. *Rest.* — When tired. Never eat a hearty meal when tired. Sleep at least 8 hours with bedroom windows open.
5. *Mouth.* — Brush the teeth after meals and at bedtime. Keep the mouth clean. Salt and water is a good mouthwash.
6. *Bowels.* — At least one good movement a day preferably after breakfast. Many a headachy, ailing individual owes his trouble to constipation. Coarse cereals, vegetables, fruits like apples, prunes, etc., and plenty of water will usually ward off constipation. Don't use drugs.
7. *Baths.* — A cold bath every day if it makes you feel good, otherwise a tepid bath; a warm cleansing bath once a week.
8. *Clothing.* — Suitable to the season: it should not be too heavy.
9. *Communicable Disease.* — Practice good health habits; avoid the careless spitter and sneezer, the common drinking cup or towel; eat and drink only clean foods. Keep your fingers away from your mouth.
10. *Mental Hygiene.* — In many ways most important of all. Refuse to worry and hurry. Be calm. Control your emotions.

PHYSICAL EDUCATION AND RECREATION FACILITIES FOR WOMEN IN BOSTON.

FLORENCE B. CHILD, 1ST VICE PRESIDENT, THE DURANT, BOSTON.

A thorough investigation some five years ago and now brought up to date discloses resources in Boston as follows:

Municipal Gymnasiums: —

City	2
East Boston	1
Charlestown	1
North End	1
Roxbury	2
Dorchester	1
Jamaica Plain	1
Roslindale	1
Hyde Park	1
	11

Classes for women, Mondays and Thursdays:

Mothers	2.30 P.M.
Younger girls	4.30 P.M.
Employed women	8.00 P.M.

Class lessons are not grades — attendance irregular or intermittent, shower baths available only in certain instances.

No physical examination required or offered.

Municipal Swimming Pools: —

Jamaica Plain	1
Cabot Street	1
	2

Open to women Mondays and Thursdays 2–10 P.M.

Municipal Tennis Courts — Franklin Park:

No instruction — equipment furnished by individuals.

Municipal Golf Course — Franklin Park:

Private Instruction: Per hour, $3.00; per half hour, $1.50.

Blue Triangle Recreation Centre — Membership in Y. W. C. A. required (conducted by the Boston Y. W. C. A. at 97 Huntington Avenue):

Gymnasium Classes — Five evening classes per week, including beginners' and advanced work:

Rates: $3.00 for term of 15 weeks, one class per week.
$4.00 for term of 15 weeks, two classes per week.

Gymnasium fair — bath and dressing room facilities (insufficient).

Physical examination required — 35¢ charge.

Tennis — Arrangement for one court on Commonwealth Avenue during season with instruction classes.

Hockey — Practice and games on The Durant Grounds.

Nellie S. Anderson Classes in Gymnastics (privately conducted), College of Practical Arts Gymnasium — Garrison and St. Botolph Streets.

Gymnasium Classes — Five evening classes per week including beginners' intermediate and advanced work.

Rates: $10 for twenty-five lessons.

The Durant Incorporated, located in temporary headquarters on its Huntington Avenue land:

Physical Education and Recreation facilities open to members and non-members — to all women and girls — on the same basis (boys included to age of ten).

Building to contain gymnasium, swimming pool, game courts, medical gymnastic rooms, extensive dressing room and shower bath accommodations, etc. See Purposes.

Now Provided on Land.

Tennis Basket ball Ice skating
Hockey Golf General sports and games with play leader.
Special children's playtime Saturday mornings with games, exercises and story-telling under play leader.
Instruction classes as follows:

Tennis,	Beginners, 10 lessons in group of ten	$3.00
	Advanced, 5 lessons in group of ten	2.00
Field Hockey,	8 lessons of one and one-half hour .	3.00
Basket ball,	10 lessons of one hour	3.00
Golf,	5 lessons in group of five (private instruction, $2.50 hour; — $1.25 half hour) . . .	6.50

Horseback Riding, special arrangements made for class work.
The three tennis courts, hockey field and basket ball court open for use by groups from other organizations as well as individuals at rate of 15¢ per hour per individual for tennis courts and 10¢ per hour per individual for basket ball court or hockey field.
Physical Examinations made without charge.

The number of individuals in tennis instruction classes in 1924 was	173
The number of registrations for tennis courts in 1924 was . .	880

The above résumé plainly shows that no adequate facilities under proper supervision and instruction exist for indoor work in the city of Boston. There is no properly equipped gymnasium where proper physical education or indoor sports may be carried on; and there is no swimming pool for the exclusive use of women in the city of Boston.

Accompanying this report are figures accumulated through research conducted by The Durant Incorporated a few months ago, which show the women population of Boston and the number of women working and studying in the city to be 333,803. They also give the population of Metropolitan Boston within a radius of eight miles as 357,957; a combined total of 691,760. A few of these cities and towns have some local facilities for indoor recreation but they are very limited, and a large number of the women residing outside Boston come in to work, study, shop and have certain hours at their disposal in the city which could be used to much advantage in healthful recreation were the proper facilities provided.

Data on Women and Girls of Boston (over 10 Years of Age), Wage Earners, Homekeepers, Student Women Working in Boston.

OCCUPATION.	LIVING IN BOSTON AND EMPLOYED IN BOSTON.		Employed in Boston and living Outside of Boston.	Total Women employed in Boston.
	Number.	Per Cent.		
Agriculture, forestry and animal husbandry . . .	32	0.6	–	32
Manufacturing and mechanical industries . . .	26,056	37.0	6,246	32,302
Transportation	3,666	10.0	750	4,416
Trade	10,464	15.1	2,248	12,712
Public service	113	3.2	–	113
Professional service	10,759	6.6	2,998	13,757
Personal service	26,969	13.2	8,244	35,213
Clerical occupations	26,243	14.4	4,497	30,740
	104,302	100.0	24,983	129,285
Student population of Boston:				
Elementary and intermediate (over 10 years of age)			19,813	
High school			10,817	
College training schools and private schools			12,934	
				43,564
Homemakers and unoccupied women of Boston				160,954
Total				333,803

NOTE. — This number does not include 2,680 women whose residence is in Boston but who are employed outside of Boston.

Women Population in Cities and Towns of Metropolitan Boston within a Radius of Eight Miles.

(Boston not included.)

Arlington	10,012
Belmont	5,723
Brookline	22,600
Cambridge	57,266
Chelsea	27,820
Everett	20,327
Malden	25,801
Medford	20,415
Melrose	9,800
Milton	5,188
Newton	25,247
Quincy	23,671
Revere	14,386
Somerville	48,741
Waltham	16,289
Watertown	10,918
Winchester	5,668
Total	357,957

THE COMMONHEALTH.

QUARTERLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
FRANCES KLEIN, S.B., ASSOCIATE EDITOR.
Room 546, State House, Boston, Mass.

A New Departure. — With this issue of The Commonhealth we introduce to you a new section devoted to the problems of Maternity and Infancy. It is for physicians and nurses primarily, but we hope that it will contain matters of importance to the director of the visiting nurse association, the social worker, as well as to the thoughtful citizen in general.

We shall be grateful for suggestions from those who use this section as to how it can be made most useful and also for news items.

School Health Problems. — The last few years have seen in this country a rapid expansion of health work of all kinds. This expansion has been so rapid that theory has not yet caught up with practice. It seems highly desirable now that we stop to examine a bit the foundations upon which our practice rests, to see if it is possible to interpret into useful and understandable terms the results we are obtaining.

With this in mind the Committee on School Health Problems of the American Public Health Association is taking up a small piece of research which, it is hoped, will gradually expand into a larger undertaking. Its effort for this year involves getting a large number of school physicians throughout the country to study the possibility of a uniform system of recording physical defects. Any physician interested and willing to share in this work can obtain further information about it by writing the editor of this publication.

Course for School Nurses. — Nurses who are looking for opportunities for development will be interested to learn that the summer school for school nurses at Hyannis is to take another step in advance this summer.

From 1920 to 1924 the Department of Education offered in connection with the summer session at the Hyannis Normal School a course in school nursing procedures under Miss Jessie Hume which proved so successful that in 1924 two more courses for nurses were added. In the summer of 1925 there will be offered two certificates, signed by the Departments of Education and Health. 1. A certificate for the satisfactory completion of one summer's work of two courses. 2. A certificate for the satisfactory completion of three required and three elective courses. The required courses are School Nursing Procedure, Principles of Health Teaching, Biology. Electives may be chosen from the following subjects, which are part of the regular program of the Normal School: Physical Education, Psychology, Mental Measurements, Pedagogy, Immigrant Education. Courses taken previously at the Normal School will be accepted toward a six course certificate.

In addition to the course for nurses there will be offered a course in School Health Problems for teachers.

Acknowledgment. — For generous assistance in the preparation of the discussion on the hygiene of the middle-aged the editors wish to thank Dr. A. B. Emmons, 2nd, Mr. Carl Schrader, Dr. Mary R. Lakeman, Dr. Mabel A. Southard, Miss Lou Lombard and Miss Margaret Fonos.

MATERNAL AND INFANT HYGIENE SECTION.

Compiled by Susan M. Coffin, M.D.

Well Baby Conferences.

Does Your Town need a Well Baby Conference?

Well Baby Conferences are being held in many States now as a part of their Maternal and Infant Hygiene Programs. In our own State, in the Division of Hygiene, we are receiving more and more requests for such conferences. The conferences are of two types: first, those held purely for demonstration purposes; the object is to start a well baby clinic, the work then being carried on by the town itself with the local physicians in charge; second, those held once or twice a year in towns where for one reason or another it is not yet possible to establish a locally organized conference permanently. The first type we feel is the more valuable as it is the immediate forerunner of a permanent well baby clinic kept up by local effort with a physician or physicians in charge. No treatment whatever is advised at these conferences. Defects are diagnosed and the parents are urged to take their children to their family physicians for advice and treatment. In many of the towns where we have had conferences there has been already established a weighing and measuring clinic conducted by the public health nurses, and the desire has been to have a clinic with a physician in charge.

The conferences usually include preschool children also. We are apt to point proudly to the number of defects corrected in our school children year by year, but we are realizing more and more that it is rather something to be ashamed of that a large number of these defects were not attended to before the children went to school at all. The youngster starting off to school with diseased tonsils, half a dozen decayed teeth and an annoying phimosis (to quote a few of the most common defects found), surely is not going to have the happiest kind of a start in his school life. We hope that sometime all the towns will have real preschool clinics, *i.e.,* examining all the children in the spring who are booked to enter school the next September. This would give all summer for correction of defects. We believe there would then be less time lost in school, fewer repeaters in the first grade and a better all-round start for the child in his school life.

Three points are of especial importance in relation to well baby conferences; co-operation, publicity, and intelligent follow-up work. The local boards of health, private physicians, visiting nurse associations and other local organizations, school nurses and physicians and parents, all need to work together if this work is to be of real value to the community.

Good advertising is as important in health education as in business, and this is really an educational effort to get people to realize the importance and desirability of regular physical examination and advice from the family physician in the care of little children.

"Follow-up" is hugely important if the well baby clinics are to accomplish anything, and here again the local nurses' work is most important because they see the families constantly and are ready to help in getting Johnny to the doctor for his tonsils or Mary to the dentist for her teeth. To have the work of any value we must know how many defects are corrected in each group examined. We send a report of defects found to the family physician in each case.

The Maternal and Infant doctors and nurses in the State Department of Health are ready to help establish conferences wherever it seems advisable.

The Department has considerable material to loan for this purpose and also printed matter for distribution which relates to prenatal care, diet and hygiene of mothers and babies.

SUGGESTIONS FOR WELL BABY CONFERENCES.

EXHIBIT: A baby exhibit at the Conference will be a great help to the mothers. Suggestions for such an exhibit may be obtained from the Massachusetts Department of Public Health.

VOLUNTEER HELP: A volunteer helper, in uniform, can assist by keeping the Conference in order.

PAPER BAGS FOR CLOTHES.

OTHER IMPORTANT POINTS:

Remember to —
  Weigh the baby without his clothes on.
  Have the room warm enough.

Emphasize —
  The need of follow-up work.
  Strenuous advice against pacifiers.

BREAST-FED BABIES ARE BEST-FED BABIES.

An Experience of an Industrial Nurse, who is also a Community Nurse to some considerable extent in the community where her industry is located.

The Mother had the true mother spirit and was ready to nurse her baby. For the first four weeks all went well, the baby nursing alternate breasts at the feedings, and gaining according to schedule.

At that point of baby life (four weeks) a breast abscess developed with no known cause. The Nurse and Doctor were working in close harmony. The baby continued nursing both breasts, but the abscessed breast milk was expressed to be sure that no pus was coming through the nipple. When that was the case the time had come for opening the abscess, so the baby was fed from the other breast and watched very carefully and closely; the baby held its own in weight during the time of having the one breast, and the stools and everything else indicated no real need for any supplementary feeding. Very soon it seemed right to return to giving milk from both breasts again, and care was used in the cleaning of nipple during the time of dressings being needed for the breast. At this point came in the added need for help and encouragement on the part of the nurse; the abscessed breast was not as easy and pleasant for the baby, and the nipple somewhat retracted; the mother not very strong, and nervous and worried, and so not quite equal for the struggle. The nurse explained the situation, and put the baby to the breast, from which he had not had food, for long enough to establish a certain habit in his mind. He would not try; it was different, it was not easy feeding as the other breast had been. After a few minutes of effort and crying on baby's part he was laid down in his bed as if his feeding were over. The first minute was such a surprise to the youngster that silence reigned, but only for the moment, for he had not had his food. Then the battle of wits began. The nurse explained to the mother that the nipple bothered the baby, and the unusual conditions made it hard for him to obtain his food supply. If they gave in it would be bad for both baby and mother. It took quite a few minutes of patience and work for the retracted nipple and calming for the worried mother during the crying of baby, but at last the youngster took hold, and that feeding was settled with a certain sense of satisfaction though everybody was tired. The same process was repeated at the next time for that breast feeding; the baby was put to the breast, and when not willing to take hold, quietly laid down as if ready for usual rest after feeding. The nurse calmed the mother, and helped her get the baby to nurse that breast. With each time the struggle was shorter; the mother became more assured of final success, the baby realized the kindly gentle firmness, and by three days all was well. Gain in weight began again and has steadily continued and perfect functioning for health of mother and baby has also continued. The milk from that breast has been ample, and alternate feedings from each breast has been the program. The mother fully appreciated the help given and has been willing to follow directions for the good of the baby to every last detail. The result is a breast-fed baby in fine condition, and a mother not only doing what is best for the baby in food, but also realizing the value of quiet patience in the mental training of even the little ones.

The Importance of Baby Teeth.

Until recently the importance of the baby teeth has been overlooked. Because they were to be replaced by a second set, it was not deemed necessary to give them any care or attention. Statistics have proved, however, that they are important and that their condition determines in a large measure the condition of the second set.

Baby teeth are replaced in time by larger permanent ones, and in order that they might come forth even and regular it is necessary that the baby teeth be kept in the mouth until nature decides that they are no longer necessary. A baby tooth extracted before its time causes the jaw to shrink up in an effort to close the space that is left. This shrinking prevents the normal eruption of the second teeth and results in a crowded uneven set.

Bad habits, such as thumb and finger sucking, late bottle nursing, mouth breathing, and the use of pacifiers, when allowed to continue over any period of time, cause the yielding baby jaws to grow in abnormal ways. For instance, thumb and finger sucking produce a misplacement of the front teeth and a facial deformity. Mouth breathing causes a narrowing of the jaws and an irregularity of the teeth. Late bottle nursing and the use of pacifiers cause a flattening of the front of the mouth. All these defects are doubly prominent when the second teeth make their appearance; therefore, urgent steps should be taken to see that they are not formed.

Neglect in cleaning the baby teeth soon results in their being covered with a sticky film of decomposing food matter and saliva. When this is allowed to remain on the teeth any length of time, it disintegrates the enamel and cavities result. When one or more of the baby teeth are so affected, the gums become sore and the teeth sensitive. To chew causes pain, and in order to avoid that feeling the child bolts his food. The stomach has no teeth, and in a short time is so loaded with work it cannot do, that the child becomes dull and listless. Malnourishment and digestive disturbances result. Worst of all the building material for the developing of second teeth is lacking.

The so-called "Gum Boils" of childhood are in reality abscesses, and when present cause a constant stream of poisonous matter to flow into the child's system, making him an easy victim to disease. Any eruptive fever such as measles, chicken pox, scarlet fever, etc., when had at a time when the second teeth are forming will cause their enamel to become pitted and lined.

It is most necessary, therefore, to see that the child's first teeth are kept free from any conditions that will interfere with the normal functions of the body.

One way in which to do so is to see that they are kept thoroughly clean. As soon as the child has reached the age of 2 years, at which time the 20 baby teeth are usually present, they should be carefully brushed after every meal. At first the duty must be performed by the mother or some older person; the child being taught to do so as soon as he is old enough to realize its importance.

An unmedicated tooth paste can be used, but a normal salt solution, made by adding ½ a level teaspoon of salt to 1 glass of cool water is just as effective. The toothbrush itself should be small, the head measuring not more than 1¼ inches in length. The bristles should be of medium stiffness, and the tufts uneven at the bottom and set far apart. It is important, too, that the gums and tongue be included in the brushing, and that the child have his own toothbrush.

Besides keeping the baby teeth clean, proper diet will do much towards keeping them strong and healthy. Mineral salts and vitamins are very essential. They are found in milk and other dairy products, vegetables, especially the green leafy ones, fruits, whole grain breads and cereals. Without a sufficient number of these the teeth are starved and have not the resistance to withstand decay. Foods that are naturally cleansing to the teeth should also be given the child. They are raw fruits, raw vegetables, coarse hard foods, such as dry toast, zwieback, and breads made from whole grains. Thorough mastication of these is most necessary; first because chewing helps to develop and expand the gums, and second, because thoroughly masticated food affords complete digestion of them and satisfactory nourishment to the body.

Dentistry for the baby teeth must not be overlooked. As soon as they have all made their appearance the dentist should be asked to examine them, and twice a year from then on, unless one is otherwise instructed, similar examinations should be made. The dentist can do much towards preventing trouble in the first and second teeth because —

1. By a careful examination at least every 6 months he can detect and fill any cavity before it grows large enough to cause trouble.
2. He can teach the child how to properly brush his teeth, and see that the duty is being performed.
3. He can put protective fillings or chemicals on the tooth surfaces that might decay.
4. He can widen the baby jaws to accommodate the second teeth without crowding, if nature fails to do so.

To sum up, then, strong healthy second teeth can best be assured by —

1. Seeing that the baby teeth are kept clean and free from decay.
2. That the growing child is given a sufficient amount of tooth-building foods.
3. That the dentist is visited at least twice a year.

MATERNAL AND INFANT MORTALITY, MASSACHUSETTS.

YEAR.	Deaths under 1 Month per 1,000 Live Births.	Deaths under 1 Year per 1,000 Live Births.	Deaths from Diseases caused by Pregnancy and Confinement per 1,000 Live Births.
1914	43.6	105.9	5.8
1915	42.6	101.9	4.8
1916	42.1	99.8	5.6
1917	42.1	97.4	6.4
1918	44.8	113.2	8.4
1919	41.4	88.5	7.1
1920	41.6	91.2	7.6
1921	40.2	75.9	6.3
1922	40.1	81.3	6.4
1923	40.2	78.1	5.6

In 1922 the United States lost 2,393 babies per week. For the same year 227 mothers died per week from causes related to pregnancy or childbirth.

Massachusetts lost 137 babies per week and 11 mothers per week during 1922.

NOTES FROM THE CHILDREN'S BUREAU CONFERENCE.

It was the privilege of the writer of these notes to attend a Conference of Directors of Child Hygiene from forty states, called by the Children's Bureau in early October.

The outstanding points of interest were perhaps obvious in the appointment of two committees:

One to consider means by which the achievements of a maternity and infancy program may be shown.

The other was appointed to report suggestive ways and means looking toward better co-operation with the medical profession.

The reports brought in by these two committees again emphasized the important bearing these two subjects will have on the further development of a maternity and infancy program.

The committee to consider means for showing the achievements of a program reported that success might be indicated by the extent to which the program is underway, the amount of territory covered by extensive work, the amount of intensive work undertaken and the amount of permanent work underway—also by the extent to which information is available on which may be based ultimate judgment of the reduction in its infant and maternal mortality rates, reduction of morbidity and increased physical fitness.

The committee on co-operation with the medical profession must have found its task congenial for it requested that it be continued as a permanent committee for further study of means for engaging the interest and co-operation of the profession. The committee is convinced that physicians are co-operating in increasing degree and urged a redoubling of effort in this direction.

Several states reported warm co-operation on the part of practically the entire medical profession. It was notable that in these states the Child Hygiene Directors had taken especial pains to interpret their work to the medical men either in their organization groups or individually. One of the directors takes no new step until it has been presented and thoroughly explained by the director in person to the State Medical Society.

The form of activity common to the greatest number of state programs appears to be the well baby conference or clinic. In a number of the states, a travelling unit is kept on the road, advance publicity being given and appointments made by a member of the staff or as in some instances by affiliated groups such as the Farm Bureau or women's organizations in the field.

Prenatal conferences as might be expected are growing more slowly in all the states. Some of the directors feel that the well baby conference needs to be placed on a firmer foundation before the attempt is made to bring out prospective mothers. In one state, however, vigorous efforts have been made to reach prospective mothers, the director stating that a nurse on her staff had succeeded in finding seven patients who came to the prenatal clinic as a result of one drive in which she stopped at every house on the road.

Expert obstetric consultation for physicians is offered in at least two states. This service is apparently giving excellent satisfaction to all concerned.

It was interesting to note the wide diversity of plans used in carrying out what in all its essentials is the same program. All are aiming to bring to the young or inexperienced or wrongly instructed mother the simple knowledge of health which she needs for herself and for her young children. All are attempting to bring medical and nursing skill within reach of the mother and child needing it. All are endeavoring to raise the standard of service available to the people yet one state with a huge area to cover and a population scattered in small villages finds it necessary to use the printed word almost exclusively and to depend upon the active co-operation of lay organizations while another carried its service almost to the door of the individual needing the instruction.

A few states are studying rates of mortality and endeavoring to run down specific causes of high rates in a given region or among certain racial groups.

READING LIST.

Gardner — Public Health Nursing (1924 edition). Macmillan.
Brainard — Organization and Administration of Public Health Nursing. Macmillan.
Van Blarcom — Obstetrical Nursing. Macmillan.
Baker — Healthy Mothers. Little, Brown & Co.
Baker — Healthy Babies. Little, Brown & Co.
Holt — Care and Feeding of Children. Appleton.
Haviland — Character Training in Childhood. Small, Maynard & Co.
White — Mental Hygiene of Childhood. Little, Brown & Co.
McDonald — Mental Hygiene and the Public Health Nurse. Little, Brown & Co.

Pamphlets.

U. S. Children's Bureau (Free), Washington, D. C.:
  West — Prenatal Care.
    Infant Care.
    Child Care.
National Committee for Mental Hygiene, New York City:
  Campbell — Nervous Children and Their Training.
    Experiences of the Child.
  Barker — How to Avoid Spoiling the Child.

NUTRITION MATERIAL.

Offered free to citizens of Massachusetts by the Massachusetts Department of Public Health, State House, Boston.

Menus in Pregnancy.
Diet for the Prospective Mother.
Diet for the Child from Birth to Ten Months.
Diet for the Child from Ten Months to Eighteen Months.
Diet for the Child from Eighteen Months to Two Years.
Breast Feeding.
Cooking for Health.
Candy Substitutes.
Keeping Well.
Food's Daily Seven.
Eating for Teeth.
Constipation, Food and Exercise for.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of July, August and September, 1924, samples were collected in 146 cities and towns.

There were 1,506 samples of milk examined, of which 538 were below standard, 64 samples had the cream removed, and 62 samples contained added water.

There were 385 samples of food examined, of which 45 were adulterated. These consisted of 41 samples of soft drinks which contained saccharine; 2 samples of flavoring extracts, 1 of which contained coumarin, and the other was deficient in oil; and 1 sample of canned herring, and 1 sample of eggs, both of which were decomposed.

There were 38 samples of drugs examined, of which 6 were adulterated. These consisted of 3 samples of lime water, and 2 samples of milk of magnesia, all of which did not conform to the U. S. P. requirements; and 1 sample of tincture of jamaica ginger which was not double strength as labeled.

The police departments submitted 1,957 samples of liquor for examination. The police departments also submitted 20 samples of alleged poisons for examination, 14 of which were morphine, and 6 samples examined for poison with negative results.

There were 30 hearings held, and 7 warnings issued, pertaining to violations of the Food and Drug laws.

There were 2 samples of coal examined, 1 sample conforming to the law, and 1 sample contained an unreasonable amount of impurities.

There were 52 convictions for violations of the law, $1,110 in fines being imposed.

John Baruth and Berkley T. Larrabee of Ayer; William Fagas of Salisbury; Fred Mercier and Antone Szloctka of Granby; Fanis Samitas, Zisis Vesos, and George Vlahos, all of Fall River; Alex Caras, Tabaras & Ingargiola, Walter H. Davis and William C. Dooley, all of Taunton; James Marinos and Peter Marinos of Plymouth; Basil S. Pappadales of Natick; Lillian Smith of Belchertown; Charles Durant of Leominster; Charles Eliopoulos, 2 cases, and Paul Gianakas of Ipswich; Chris Equi, Polydore Galipeau, John Mazzolini, Henry Rapacki, Charles W. Bluemer, and Adam Krutz, all of Holyoke; James L. Hohn of Nantucket; William Robichaud, Byron O. Tilton, and Katherine E. Tobin, all of Greenfield; Joseph Steele of Provincetown; Fred Trigg of Sagamore; John Casey, Thomas Graham, Patrick Keegan, and William Schultz, all of Great Barrington; Peter Cardin and Fred Dery of Winchendon; Louis Giana of Chatham; David Leavitt, Andrew Mavros, and Solomon Wolf, all of Revere; and James Metros, and Angelo Tzoulios of Worcester, were all convicted for violations of the milk laws.

Gilman G. Blatchford of Gloucester; John Arguras of Peabody; Isaac Butler of Chelsea; Chester Cafasso & Eugene Iuliam of Everett; Charles P. French of Medford; and Great Barrington Bottling Works, Incorporated, of Great Barrington, were all convicted for violations of the food laws.

Morris Feldman and Max Miller of Boston were convicted for violations of the mattress law.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 6 samples, by Manuel Costo of Dartmouth; 4 samples each, by Mary A. McDonald of North Reading, and Charles Durant of Leominster; 3 samples, by Fred Topping of Sheffield; 2 samples each, by Charles Kurtz and Charles W. Bluemer, both of Holyoke, Walter Kileine of Oxford, and John Josephson of Sutton; and 1 sample, by Noble P. Swift of Sagamore.

One sample of milk which had the cream removed was produced by Charles Wadlin of Salisbury.

One sample of flavoring extract which was deficient in oil was obtained from the Eastern Chemical Company of South Boston.

Soft drinks which contained saccharine were obtained as follows:

Ten samples, from Meyer Kaplan of Pittsfield; 7 samples, from Blatchford Brothers of Gloucester; 4 samples each, from Everett Club Bottling Company of Everett, and Great Barrington Bottling Works of Great Barrington; 3 samples, from Essex Bottling Company of Peabody; 2 samples each, from French Brothers of Medford, Adolph Tourigny and Hannula & Son, both of Gardner, Odilon J. Desplaines of Southbridge, and Sunshine Beverage Company of Chelsea; 1 sample each, from Thomas Brazell of Gardner, and American Soda Company of Worcester.

There were eleven confiscations, consisting of 867 pounds of decomposed fowls, 1,025 pounds of decomposed beef, 250 pounds of decomposed bear meat, 270 pounds of dried out lamb, 450 pounds of dried out pork, 175 pounds of tuberculous pork, 40 pounds of tainted veal, 50 pounds of decomposed veal legs, 160 pounds of decomposed salami, and 166 cases of decomposed kippered herring.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of June, 1924: — 4,068,630 dozens of case eggs, 173,084 pounds of broken out eggs, 10,754,970 pounds of butter, 1,463,706 pounds of poultry, 4,492,886 pounds of fresh meat and fresh meat products, and 3,273,261 pounds of fresh food fish.

There was on hand July 1, 1924: — 14,524,080 dozens of case eggs, 1,206,664 pounds of broken out eggs, 11,999,179 pounds of butter, 4,152,272 pounds of poultry, 15,067,355 pounds of fresh meat and fresh meat products, and 7,640,729 pounds of fresh food fish.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of July, 1924: — 2,226,630 dozens of case eggs, 258,074 pounds of broken out eggs, 11,307,077 pounds of butter, 1,579,513 pounds of poultry, 4,637,966 pounds of fresh meat and fresh meat products, and 4,706,275 pounds of fresh food fish.

There was on hand August 1, 1924: — 15,800,280 dozens of case eggs, 1,187,341 pounds of broken out eggs, 21,905,263 pounds of butter, 3,950,305 pounds of poultry, 14,545,884 pounds of fresh meat and fresh meat products, and 11,199,653 pounds of fresh food fish.

The licensed cold storage warehouses report the following amounts of food placed in storage during the month of August, 1924: — 911,700 dozens of case eggs, 261,733 pounds of broken out eggs, 5,118,129 pounds of butter, 584,494½ pounds of poultry, 2,513,619 pounds of fresh meat and fresh meat products, and 3,179,202 pounds of fresh food fish.

There was on hand September 1, 1924: — 14,796,210 dozens of case eggs, 1,070,962 pounds of broken out eggs, 24,848,495 pounds of butter, 3,099,641½ pounds of poultry, 12,380,091½ pounds of fresh meat and fresh meat products, and 12,497,892 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

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The Northeastern District	Lyman A. Jones, M.D., Swampscott.
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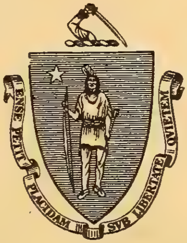

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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1925

MENTAL HYGIENE AND CHILDHOOD.

By Frankwood E. Williams, M.D., Director, Division on Education, National Committee for Mental Hygiene.

EVERY day we meet people with whom it is difficult to get along. They are queer or odd, irritable, unreasonable, selfish and egotistical, or sly and untrustworthy, or they may have no sense of responsibility and try to put the burden of work or blame for failure on others. Sometimes others find it difficult to get on with us because we are self-centered or full of prejudices, so that we cannot see clearly and fairly the other person's point of view.

People are not born this way. They are made this way. The foundations of these types of personality are laid in childhood. One forms mental habits as one forms physical habits. Some are good and some are bad. We take great care in helping the child form good physical habits, but we are inclined to neglect almost entirely the emotional habits the child may develop, although so far as the happiness of the child and its future success in dealing with others is concerned, these are probably more important. Every waking hour the child is reacting emotionally to situations that arise in its environment — in the school, in the home and on the playground. Through these experiences he forms emotional habits — ways of meeting unpleasant situations, ways of looking at things, ways of feeling about things. These habits tend to become fixed and if they are bad habits, they lead in adult life to much unhappiness and inefficiency, such as you and I find in our lives because no one helped us in these matters when we were children, or to the warped and twisted and odd personalities about which we have spoken. Sometimes they lead to nervous and mental breakdowns.

One cannot, in a brief paper, discuss all the problems that have to do with the healthy development of the emotional life of the child, but one can point out a few important things:

Children should never be frightened. Frightening children is a very serious matter, although many careless adults take it as a joke. Frights in childhood often bring serious consequences.

Children must be taught to act in ways that are socially acceptable, but this should not be brought about through shaming them. Shame is not a healthy emotion to bring into the life of a child, neither is humiliation nor embarrassment nor painful self-consciousness before others.

Children should not be lied to concerning important matters, especially about the matter of sex. The lying and deceit are soon discovered and the experience is exceedingly bad for the child. Much of the unhappiness, worry, and failure at school, and of the nervous illnesses of young adolescents, as well as the nervous and mental breakdowns of later life, are due to the misunderstanding of these matters that has been brought about by the lying and deceit of others. It is of very great importance that this be avoided. The questions of a child along these lines should be answered honestly and without embarrassment, in accordance with the ability of the child to understand.

Every effort should be made to keep the child from developing feelings of inferiority. Parents and teachers often create these feelings in a child by calling him names that indicate that they do not think very highly of the child, or by comparing the child with another child unfairly. "Mary is real smart, but John is dumb." No parent or teacher would permit such a remark in the presence of John if he understood the lasting harm that it is likely to do John, particularly if often repeated.

There come times when children must be punished. Children can be punished in ways that benefit them, but on the other hand, most unhappy consequences may follow unwise punishment. Punishment should be fair, reasonable and prompt. It should not be arbitrary or merely an expression of the whim of a parent or teacher, disregarding the child's sense of fairness and justice. Punishment that is merely an expression of a parent's or a teacher's anger, creates a perfectly proper anger and rebellion on the part of the child. The parent or teacher in losing his self-control is misbehaving worse than the child, and the child knows it. Such punishment may create fear in a child so that it "minds," but his good behavior is purchased at too high a price for the reason that the hatred of, and rebellion against, authority becomes a fixed emotional habit leading to great difficulties later on.

In helping the child to develop healthy mental habits, as we help him to develop good physical habits, it is well to keep in mind one fundamental principle — to permit the child as much freedom of expression as possible; allowing him to find an expression for himself and his own particular interests in his play, in his work and in his contact with other members of the family. Where this expression is unwise or unsafe or interferes with the rights of others, a wise parent will direct the child's energy into other and better channels, but without forcing a repression on the child that will be harmful.

Help the child to maintain his own self-respect. Do not by word or action take away from him what self-respect he has. A parent who gains control over his child by breaking the child's spirit is an unworthy parent.

And finally it should be remembered that if one desires to cultivate healthy mental habits in one's child, it is well to do a little cultivating in one's own personal garden.

BREAST FEEDING.

By Eli Charles Romberg, M.D., Boston, Mass., Physician to the Children's Out-Patient Clinic, Massachusetts General Hospital; Assistant in Pediatrics, Harvard Medical School.

A MOTHER ought to nurse her child. This is the only fundamental rule of feeding. However, it is a rule that is violated daily, violated by those whose duty it is to perform it, and violated by those who have it in their power to encourage it. This unwillingness to nurse the infant is occurring so frequently that it ought to be considered, as it is in many countries, a social problem. I wish to emphasize the importance of breast feeding because frequent departure from this method to that of artificial feeding is to a great degree due to the neglect of the doctors, nurses, and public health workers in not insisting upon such a procedure.

Nowadays there is a tendency to feed infants artificially. Under any consideration babies are difficult to rear. The breast fed infant, even though he is in the best of health, requires a considerable amount of care. Every woman is endowed by nature with the capacity to nurse her child. Professor Pinard, in a lecture delivered before the French Academy of Medicine in 1914, stated that in the twelve thousand confinement cases which took place in the Maternity Hospitals of Paris during part of that year there had been no single instance of a mother being unable to nurse her baby. Professor Budin, who has given us a splendid book on the bringing up of the nursling, insists that every woman who is delivered in his hospital nurse her baby.

It would be a pity to feel that our modern mother has become to such a degree a subject of our highly active life, full of distractions and nervous tension, that it has in some way rendered her unfit to carry on the responsibilities that come with pregnancy. It would be unfortunate if she were found to be capable of performing her natural duty yet were unwilling to undertake this task because of the distractions of her social life. I would rather say that it was the fault of the physicians and those actively interested in the welfare of the mother that more babies are not being nursed. Unfortunately many women have felt that modern science has succeeded in developing a food just as good as breast milk. Frequently the mother has fallen in with this point of view, particularly if the physician easily agrees to her demands.

Some physicians are so optimistic about their ability to feed the children artificially that they say their formulas are just as good as breast milk. I was very surprised to hear that one prominent Pediatrician was so enthusiastic about his type of feeding that he was willing to start on artificial feeding at birth even though the mother was capable of nursing her child. If only one could keep in mind the fundamental principle that breast milk is the only milk for babies and that there is no substitute for it!

One of the most important facts in the study of infant feeding and the prevention of gastro-intestinal disturbances in infants is that mother's milk is the only food for the baby. Whatever science has accomplished in the past in its effort to create a substitute the result has been an inferior one. Disturbances of digestion occur more frequently in infants who are artificially fed than in those who are breast fed. No matter how carefully we prepare cow's milk, in our attempt to make it replace that of woman's, no matter how we regulate the infant's feeding and fulfill other necessary requirements, there are always more intestinal disturbances than when the child is fed on breast milk. If disturbances do occur in the breast fed infant, they probably are associated with some other constitutional disturbance like an acute infection, or difficulty in the feeding, or some irregularity in the habits of the mother. Cow's milk is an unnatural food for the child. It may be that the foreign milk is an unnatural food for the child. It may be that the foreign albumins of the cow's milk irritate the membranes of the child's intestines, or after absorption some specific reaction occurs between the proteins of the milk and the infant's blood serum.

The disturbances in feeding are perhaps the greatest causes of mother's worries during the child's first year. If the mother, the nurse, and the doctor appreciate for all time that breast milk is the best food for the baby, and will do their best to advance this phase of infant feeding, much will be accomplished in the prophylaxis of the diseases of infancy. The insistence upon breast feeding has been the most important means in reducing infant mortality. However, the attraction of the public to the various methods of artificial feeding, the activities of the infant health stations, and our own increasing scientific knowledge in the nutritional problems of infancy have been important factors. Our past experiences have shown us that even under difficult economic conditions, where there has been milk and food shortages, breast feeding is possible in most of the women in spite of the unfortunate environment in which they are compelled to live.

Recently, public health investigation has shown that even in such crowded and unsanitary districts as the East Side of New York, where the inhabitants have to live under strained economic and social life, the infant mortality has been lowered by breast feeding. I shall not go into statistical detail but records show that the mortality for the artificially fed is about five times as great as the breast fed child. However, infant mortality is not the only problem. In later life the bad effects of artificial feeding are demonstrated: the various intestinal disturbances and the disorders of nutrition which do not kill the child but which make him more susceptible to the acute infections or hamper him by an imperfect or deformed physical development. Even though a mother finds that she is not able to feed her child completely with her breast milk it is much better to give the child some breast milk than none at all. What I think we ought to insist upon is that every attempt should be made to breast feed the baby during the first few months of life. After the child has been given a little start and is making rapid strides in the development of a vigorous body it is proper to give the mother a little leisure by introducing a formula for the afternoon feeding. This will give her a period of rest for six hours when she may go shopping or socialize.

Importance of Prenatal Care.

I believe that one of the most important means of making the mother capable of nursing her child is to give her appropriate prenatal care: prenatal help not only from the point of view of the health of the fœtus but careful consideration of every physical and mental activity of her life. Many women enjoy the best of health during pregnancy. They are happy, buoyant, put on weight with very little effort, and do not show any signs of ill health during this period. This is the way it should be. There are some women in whom pregnancy apparently does not appear to be a healthy physiological state. Many of these women are unhappy, they do not eat as well as they used to, and they neglect all the activities which previously gave them pleasure. Some naturally take on weight and in their efforts to get rid of the natural increase of weight in pregnancy they begin to diet, unknowingly eliminating essential food elements. Some physicians believe that a reduction in weight and the elimination of certain food elements make labor shorter and easier. I believe if such women took more active exercise this increase of weight would not be so great. Perhaps this prenatal dieting, with the subsequent low state of vigor that is so frequently found in such women, is one of the causes for their incapacity to produce sufficient milk to nurse their children. We do not know what influence this dieting has in the nutritional diseases of infancy. I certainly believe that mothers should eat a varied diet sufficient to maintain her caloric requirements with vegetables particularly a part of her diet. It is unwise to load up a woman with excess foods merely because she realizes that she has to feed another body and has to maintain good health. I speak of the practice frequently employed of asking mothers to take beverages of all kinds, unusual amounts of milk, water, and fat-producing nutritious material. She must have sufficient active outdoor exercise.

The care of the breasts prenatally is important. The mother must appreciate that pressure on the breasts may interfere with the proper functioning of the mammary glands. If the nipples are retracted attention directed to them in the later months of pregnancy may save the mother and infant many distressing periods. Tender, soft nipples can be hardened by proper care during these months.

Establishment of Lactation.

Several months before lactation a thin serous material can be expressed from the nipples which represents the fluid from congested mammary vessels. It is only several days after the birth of the infant that the milk appears and then perhaps only after the stimulus of sucking has been utilized. This secretion during the first few days of life is called colostrum, which is amber-yellow in color and contains large leucocytes now termed "colostrum corpuscles." These are supposed to be phagocytic, immune bodies which are of value to the infant. The protein content of the colostrum is high, the fat globules are of unequal size and the protein has the same hemolytic action as the mother's blood. Some have compared it to maternal lymph claiming that it has the same characteristics of the amniotic fluids. It is said to be directly absorbed into the blood without preliminary digestion. Because the quantities of colostrum are so small, there is no tendency of over distending or overloading the stomach. Establishing the practice of putting the baby to the breast soon after birth perhaps is wise even though the baby appears dissatisfied and hungry. In this way it permits the baby to develop digestive functions gradually and in crying vigorously compels wide respiratory excursions encouraging pulmonary expansion which in many children tends to be lax.

Many mothers are anxious to breast feed their babies but after several days of discouraging attempts they feel that they have not enough to satisfy their crying babies. This situation particularly occurs quite soon after the birth of the child when the mother is in a rather low state of health following a protracted, arduous period of pregnancy and the difficulties of labor.

Even after the mother has convalesced slowly and has gradually returned to her daily duties, and apparently is enjoying normal health, her breast milk may not be plentiful. It is at this time that various methods are frequently adopted to encourage the production of milk. These "milk producers" are called galactagogs. I believe that our best galactagog is the encouragement we give the mother to return to the life she led before her pregnancy after she has recovered fully from the effects of her pregnancy and labor: a natural life full of normal, healthful activities, free from undue worries, maintaining the same life and diet that she enjoyed before her pregnancy. From a physiological point of view the best stimulation for the production of milk is the sucking of the infant. The more vigorous the stimulation by him the greater the activity of the mammary glands. Breasts that are never nursed after delivery soon lose the milk which they temporarily secreted. If the child is too feeble to suck the breast, or if there are mechanical difficulties as retracted nipples or small nipples, some other means ought to be undertaken to stimulate the sucking of the infant until such a time when these conditions have been relieved. These difficulties can be helped by "stripping" the breasts, using a breast pump, the breast shield, and sometimes by massaging the breasts so that the child meets a nipple full of milk and is saved the fretfulness from repeated unsatisfactory attempts to get anything. Providing that all other factors have been considered, it is generally true that the amount of milk produced is determined by the demand which is made upon the breast. If a breast is only partially emptied after a feeding the later outputs will yield but a smaller amount. A breast which at first yields only a small amount of milk will later yield continuously greater amounts if the breast is regularly and more completely emptied. Many times large amounts of milk will appear after weeks of discouraging results when only small amounts of milk were produced. There are other galactagogs which are used. Some have recommended drugs but their efficacy is doubtful or inconstant. Some investigators have reported successful results from the use of extracts of the posterior lobe of the pituitary gland and ovarian extracts, particularly corpus luteum. But again the effect is very transitory or doubtful. Because the results have been so contradictory in many cases, it is now very well agreed that little is known as to the efficacy of glandular extracts in aiding the production of milk.

Clinically it has been observed that large amounts of water and milk seem to increase the amount of milk in the mother. It is not necessary to drink more than one quart of milk and one quart of water. Many women who are so anxious to nurse their children will forcibly compel themselves to drink excessive amounts of milk which is ordinarily distasteful to them. Many times, particularly in women who find milk rather distasteful, the addition of some proprietary malt food makes the milk more attractive. Many pediatricians feel that eczemas of infancy may be caused by some child's idiosyncrasy to such foods. They should not be encouraged particularly when there are so many other means of obtaining a large flow of milk. Many observers feel that the intake of large quantities of fluid has little bearing upon the production of large amounts of milk. The practice of encouraging its use probably has arisen as a result of clinical experience and the fact that in weaning the abstinence from fluid results in its greater depletion.

There are women who must not breast feed their children. I cite the following conditions where breast feeding is contraindicated. It is important to appreciate these conditions because many times it is difficult to decide whether it is wise to risk the procedure of breast feeding, particularly if the feeding is to affect the health of the mother or child. It is always a good thing to keep in mind that breast feeding is a normal physiological process and that it is absolutely essential for the proper nutrition of the child. With this in mind every case in which you are planning to wean the child should be considered individually:

Tuberculosis. — The most important contraindication to breast feeding is tuberculosis, particularly when the condition is active and the child is constantly exposed to infection. If the tuberculosis is healed, and if the mother is in fairly good condition, it may be possible to put the infant on a part time breast feeding; however, constant, careful supervision of the mother should be made in order to determine if too much a drain has been made by breast feeding.

Insanity and Epilepsy. — Though the milk from such mothers does not bring to the child any harm or taint, these conditions have been cited as contraindications because of some physical harm that might come to the child during an insane or epileptic attack.

Acute Infectious Diseases. — In some of the prostrating, acute infectious diseases as pneumonia, typhoid fever, and septicemias, it is generally advisable to wean the baby temporarily in order to save the strength of the mother. In other acute infections like influenza, sore throats, since it is known that the milk does not transmit these diseases, ordinary precautions as to cleanliness are all that are necessary. In infancy most youngsters are immune to most of the exanthemata.

Post Eclamptic Conditions and Nephritis. — There is some belief that in many of the severe cases of Nephritis and Eclampsia toxic nitrogenous substances may be excreted in the milk. This possibility is generally slight particularly after several weeks have elapsed following the acute renal involvement. It is now believed that if babies are weaned in such conditions it is to save the mother unusual strain of nursing. In cardiac complications there again the mother is saved the additional burden of nursing.

Post Partum Debility, Severe Hemorrhage, and Anemia. — It may be necessary to wean the baby temporarily until such a time when the mother has recovered her normal vigor and health. With careful care this return to health may take only a few weeks. The breasts in the meantime can be kept lactating by extremely short nursings.

Other Malignant Diseases. — The malignant diseases cannot be transmitted through the mother's milk and there ordinarily is no reason why mothers cannot nurse their babies, particularly if the malignancy does not involve the breasts. However, breast feeding is generally not recommended in such cases because in many there is a progressive loss of weight and all the associated subjective symptoms of depleted health. It is, therefore, unfair to ask a mother to accept the additional burden of breast feeding. If there is a malignant disease which apparently is slow and does not seem to affect the mother's health in general, it may be advisable to have partial breast feedings.

Syphilis. — It has already been proved that both the child and the mother are infected. If the child has it actively it is very important to give the infant as strong a constitution as possible, because we know that syphilitic children are subject to nutritional disorders which are frequently magnified by artificial feeding.

Menstruation. — Occasionally with menstruation there is a slight disturbance in the health of the baby, — occasional vomiting, diarrhœa, and fussiness. These conditions are inconstant and are never severe enough to indicate weaning. Sometimes if the mother is very distressed during such times and her condition reacts very severely on the baby, it may be advisable to help the baby with an artificial formula for several days.

Pregnancy. — It has frequently been the practice to recommend weaning of a child when the mother becomes pregnant, because of the feeling that it is unfair to ask a woman to feed three bodies. Many infants have been weaned because of the insufficient supply of milk that frequently occurs when the mother learns that she is pregnant, but it is felt that this depletion is not due to the onset of pregnancy but to the depression of some mothers when they realize that they are pregnant. When true depletion generally occurs it takes place in the latter part of pregnancy. Therefore, it seems advisable to encourage the mother to return to a happy state of mind and to maintain her nutrition as much as possible. If such procedures are maintained many infants can be carried on to the safe period of weaning.

Inherited Belief of Inability to Nurse Children. — In our obstetrical hospitals we frequently meet the woman who refuses to nurse her baby because she says her mother and grandmother could never feed their children. No attempt, therefore, is made by her to nurse her infants because of this prejudiced point of view. It is only the insistence and stubbornness of the physician that succeed in proving to her that she is capable of nursing her child. This is insuring good health to the infant and happiness to one who has been shown that her prejudice has no basis. I have seen a young, vigorous, healthy woman come into an obstetrical hospital and refuse to nurse her baby because of this inherited prejudice. For eight or ten days the infant was regularly put to the breasts of the mother with very poor results. The child was given a formula in the meantime. After ten days of such practice the milk began to come in great amounts, to such a degree that she was able to feed her own infant and another on the ward. She undoubtedly was sincere in her belief that she could not feed her infant.

Gastro-Intestinal Upsets. — Many pediatricians will wean the baby because of persistent gastro-intestinal disturbances which have occurred in spite of all co-operation. However, it seems contradictory to recommend an artificial food at this time when one considers breast milk is the most easily assimilated food.

Several conditions were mentioned in which weaning was recommended. However, these indications were relative and each case ought to be considered depending upon the severity of the disease. In only one condition was weaning absolutely contraindicated and that is in active tuberculosis. It is advisable, therefore, that every case should receive the individual consideration of the physician and weaning should only occur after every factor is carefully considered. The physician should realize that changing to an artificial feeding may make a bad situation worse. If there is any doubt at all let him supply a temporary formula attempting to maintain lactation until a woman's health is improved. At all times give breast feeding the benefit of the doubt.

PROCEDURES IN BREAST FEEDING.

There is still a great deal of discussion about the time when infants should first be put to the breast. Many feel that both the mother and the child should be allowed to rest undisturbed for twenty-four hours in order to recover from the severe ordeal through which they have just gone. During that period it is recommended that the child be given small amounts of sweetened water, primarily to supply the water requirements of the infant and prevent the usual loss of weight that occurs during the first few days. Some advise that the infant be placed at the breast eight to twelve hours after birth, every four to six hours on the next day, and then on shorter periods of three to four hours, particularly when the milk supply has come in. This is done, not because of the nourishment that the child receives, but primarily because of the stimulation that nursing gives to the secretion of milk. Secondly, because of the supposed value of colostrum to the new-born infant. Others advise that the infant be kept from the breast for twenty-four hours or until it shows signs of hunger, and then gradually during the next few days go into an established schedule.

Unless the infant is premature it is advisable to establish a three-hour schedule as soon as possible with one feeding after ten o'clock at night. Providing the infant has made regular normal gains this night feeding can be eliminated after the baby is four or five weeks old. In some healthy, easily satisfied infants the ten o'clock feeding can be eliminated. I believe night feeding is an unnecessary practice particularly in a normal infant who gains more than six ounces a week, and who has no loss of weight to make up. At first it may be difficult to break the child of this habit, but if the parents are willing to put up with the discomfort of the child's crying for several nights the schedule can be firmly established. Some recommend putting infants on a four-hour schedule as early as possible. This in a vigorous, healthy infant can be done at about six months of age. But no set rule can be laid down. After all it is the careful consideration of the needs of an individual baby. The over fat, sleepy, nonactive child will be content to wait four and five hours for his feedings, or will sleep on until he is disturbed. On the other hand the hyperactive child who is on edge all the time, who is utilizing every bit that he is taking in for active metabolic need can hardly wait for his next meal. The ideal is to let the baby sleep undisturbed as long as possible providing he can maintain the normal gain for his age, and satisfies your requirements of physical development.

This is a good opportunity to say a few words about insisting upon regularity of schedule. The infant is what you make him during the first few months of life. The cranky, restless, irritable child of the second half of the first year and even later is the result of the constant intrusion of the parent during the first few weeks of life whenever the child cried, fussed or moved about. The door that is constantly opened to see what the child is doing, the baby that is picked up whenever he sneezes or whimpers, or is fed at any time to quiet him, becomes the unmanageable infant later. Much of the sleeplessness, restlessness, fretfulness, vomiting, diarrhœas, and general bodily malnutrition can be ascribed to the irregularities of feeding. There is no better time than in infancy to begin this habit formation. In a breast fed child, other factors being considered, I believe this to be one of the most important considerations. Much could be written about the practice of routine regularity in the care of the infant. This, like breast feeding, should be accepted as a fundamental law.

DIFFICULTIES IN BREAST FEEDING.

Even when breast feeding is attempted difficulties may arise. The mother appreciating the value of breast feeding may look upon the task as an evil and perhaps is anxious to get through with it as quickly as possible. She nurses the baby hurriedly, she herself is restless and active during the feeding, the child is held uncomfortably, the environment is noisy and there are many things which distract the mother and unnerve the child. These must be corrected. The nipples may be depressed, so that the child, if he is not vigorous, will make no attempt to withdraw them, or if he faithfully attempts to feed will get no encouraging results. Depressed nipples can be withdrawn by the persistent efforts of the child, the manipulation of the breasts by the mother, the use of breast shield nipples and the breast pump. It is hardly advisable to recommend the method adopted in some European countries of allowing young puppies to nurse at women's breasts to bring out depressed nipples. Cracks or fissures in the nipples frequently occur. This may result in the infection of the breast through this portal of entry, or may end in a depleted supply of milk because of the protective reaction of the mother who withdraws her breasts because of the pain during suckling. Proper care of the breasts during the latter months of pregnancy and during nursing will eliminate such conditions. Washing the nipples with a boric acid solution before and after feeding, application of tincture of Benzoin compound or Castor Oil and Zinc Ointment to the nipples, or 2% Silver Nitrate solution where fissures are present will temporarily "anæsthetize" the nipples. Nipple shields properly used give relief.

The breast milk may not be abundant through the child's own fault. He may be too weak and premature to possess sufficient strength for forceful suckling. There may be physical abnormalities in the infant; as markedly obstructive adenoid tissue, harelip, or cleft palate. He may be too frequently fed, so that his appetite is impaired and as a result takes little milk and never completely empties the breasts. Frequent distraction, of which I have already spoken, tends to make a child irritable, particularly in the nervous type of infant. This type of child, being distracted, stops feeding before the meal is finished and the breasts are sufficiently emptied, and cries persistently immediately after a feeding and before the next feeding is due. Many children who are anxious to feed cannot do so because the mother has never been taught to hold the baby comfortably during nursing. Some children have difficulty in breathing because of large spongy adenoid tissue, so that when the child's nose is thrust into the mother's breast he is unable to breathe during his feeding and improper, weak suckling attempts occur. Sometimes the child is held so uncomfortably that feeding is an effort for him rather than a pleasure. The mother must be taught to support the substantial parts — the head, shoulders, and buttocks. The nipple should be a little higher than the infant's mouth so that the milk tends to gravitate rather than be sucked up.

LENGTH OF FEEDING.

It is frequently asked how long shall a baby be kept at the breast? How is one to know when the baby has had enough? It is not true that a baby will stop when it has had sufficient, for most children are gluttons and will take in much more than their gastric capacities. One must not wait until the child vomits to prove that he has had enough. Recent investigations have shown that a vigorous child, if kept busily engaged, with no distractions, will get about eighty-five per cent of the milk supply in five minutes, and that ten to twelve minutes will give him nearly all of value that he can obtain. With this schedule in mind, think of the frequent unnecessary vomitings that one can eliminate, and consider the saving of time and strength which a mother can devote to other tasks.

Babies should be awakened for their feedings. This matter has been lengthily discussed. In addition to the other obvious reasons for regularity of feeding, such a procedure merely adds to the importance of habit formation. Let the body accustom itself to routine, regular visits of food which it has learned to accept and utilize at accustomed intervals. Some babies will take the breast so vigorously that they get their supply too quickly. Much air is sucked in in this process. This not only gives them distress but may cause frequent vomiting. If such a condition exists, the child should not be permitted to eat too fast, but the breasts should be withdrawn and the child given a moment's rest.

Some babies want to sleep at the breast and must be constantly shaken to be kept awake. Before feeding is begun they must be thoroughly aroused and must not be allowed to fall asleep in the midst of a feeding. A sleepy child may make a feeble effort to nurse and finding an empty nipple, becomes discouraged and falls asleep. In such cases it is a good practice to massage the breasts so that when the infant comes for his feeding he encounters a nipple already filled with milk. Such a practice does away with the unnecessary custom of sweetening the nipples with sugar. Only one breast should be used for a feeding. This insures at least complete emptying with the resulting production of greater amounts of milk.

NORMAL GAIN IN WEIGHT.

No baby should be permitted to lose a great deal of weight during the first week in the hope of recovering this loss after the mother gets up and establishes normal health and activities. While waiting for the milk "to come in" one can prevent this initial loss by the frequent administrations of small amounts of 5% Lactose. I do not believe it is necessary to resort immediately to formulas. Frequently if the baby is given a formula he finds it more pleasant than the mother's milk and refuses to take the latter.

Normally, a breast-fed baby, after the first few weeks, gains from five to six ounces a week. Some children will do better and average an ounce and even more a day. Towards the latter part of the first year the gain is much less per week. Some children will make abnormal strides, in one week gaining as much as a pound and the next week will remain at a standstill because of the unusual strides of the previous week. Personally, I do not think that one should be worried by these temporary lapses as long as the gain of weight over a period has been progressive. Of course it is a better picture to observe a child who has made a progressive, constant gain than one whose gain has been frequently interrupted. Many feeble infants do not gain weight, particularly those that have very little subcutaneous fat and as a result have a constant loss of body heat. They utilize all their food to maintain their body heat. It is very important, therefore, to keep track of the temperatures of such infants. They will begin to store their food and gain weight if external heat is supplied to maintain their normal body temperature.

COMPLEMENTAL FEEDING.

Sometimes it will be necessary to give the infant complemental feeding. In making this decision one is guided by the weight curve of the child, the history of crying right after the feeding or long before the next feeding is due, the behavior of the infant in his display of hunger, and the milk supply of the mother. I feel that one should first find out whether the mother's health is good, whether the baby is fulfilling all the rules for proper breast feeding, and whether the mother is living up to all of the recommendations. If the mother is in an obstetrical ward the complemental feeding should consist of breast milk obtained from some other woman who has an excessive amount, and whose physical condition has been carefully investigated.

Never be too hasty in your decision for complemental feeding. I would rather mark time and try to look into the possible causes for this deficiency, even though the infant's weight is stationary. The food that the baby consumes is supposed to supply his caloric requirements and so much more for storing purposes that we recognize as his daily gain in weight. The normal baby generally requires from about thirty-five to fifty calories per pound body weight. Weighing the baby before and after breast feeding at different periods during the day and extending over several days and computing the average caloric intake one can compute the number of calories necessary in the complemental feeding. Even then we find ourselves overtaxing the gastric capacities. A rough useful rule to determine the stomach content of the child is frequently used. An infant can hold one to one and one-half ounces plus its age for a single feeding. This rule holds up to six or seven months of age. For instance, a child of four months can hold from five to five and one-half ounces to a feeding. It is always important, when complementary feedings are used, to begin with the breast feeding no matter how little milk is available. Always let the infant nurse at least ten minutes at breast to make sure that it is completely emptied. Many times supposedly depleted breasts have been revived.

Between feedings the child can be given small amounts of boiled water. Many infants will refuse boiled water, but will take orange juice or slightly sweetened liquids. Orange juice, well diluted, can be safely taken after the child is one month. To be assured of sufficient liquid intake, one can dilute the orange juice to maintain the necessary amount. Ordinarily sweetened foods should not be encouraged, yet water is very important, and as a last resort a little cane sugar can be added.

CONSTIPATION.

Ordinarily a normal baby is not distressed, has no vomiting or diarrhœa, and has several small, soft, yellow, non-foul stools a day. Others will have a very small stool following each feeding apparently due to the increased intestinal movements during the stress of breast feeding. This again is normal. Some breast-fed babies may be constipated or their stools may be too frequent and show other abnormal characteristics. This may be due to the mother's constipation, some irregularity in her habits, some improper intake of food, some infection, or menstruation. In order to eliminate this, the mother has to be treated.

Many mothers take constipation too seriously. Personally, I would encourage patience and an attempted correction of diet rather than give frequent laxatives early in life. It is just another habit formation from which one will find it difficult to break. First, in this attempted correction I encourage the mother to live a normal life, to have sufficient abdominal support for the weakened muscles, to do all those exercises that tend to bring the abdominal muscles to their previous state, to eat a bulky diet, to force fluids, and finally, and most important, to make a persistent attempt to form a time habit for bowel movements. Many infants will be benefited by these corrections. One should attempt to make a child's bowels move at a regular time. We can always depend upon sufficient fluid intake. A little later in infancy, we have the fruit juices to help us. Many of the infants are constipated because of weak, flabby abdominal musculature and the concomitant flabbiness and ptosis of the intestinal tract. Abdominal exercises cannot be started too early — after the morning bath, by pressing down deeply into the left lower quadrant; then stimulating bowel movement by grasping the child's trunk with one hand and pressing the knees deeply into the abdomen with the other. The infant frequently learns what it is all about when he receives the occasional added irritation of a glycerine suppository or a greased enema tip. It is much better to do this and to give occasionally a mild laxative, enema, or suppository than to be compelled to depend upon cathartics to establish bowel movements. I believe that much of the constipation in infancy and in later life can be corrected by the persistent, patient co-operation of the mother in establishing the habit formation which I have outlined.

VOMITING.

In order to give you some understanding of the vomiting which you so frequently see in breast-fed children, and that you may appreciate the significance of vomiting, I shall briefly consider some of the most important causes. We may have a congenital obstruction in the form of a partial or complete atresia, a pyloric tumor, a volvulus or fecal obstruction. The failure to accept any food at all with no stools and persistent loss of weight will make you think of an atresia of the œsophagus. Persistent projectile vomiting beginning very early in infancy with a constant loss in weight, scanty stools, and marked visible peristalsis will make you consider a pyloric tumor. A sudden attack of abdominal pain with persistent vomiting, first of food material and then of blood-streaked thin vomitus, absence of stools, and with abdominal tumor palpable will indicate a volvulus, a history of constipation with palpable fecal masses will make you think of fecal obstruction. There are several other obscure causes of obstruction which I shall not mention here.

In a young infant, accustomed only to the simple, well-prepared food elements of his milk, the introduction of some heavy food, or something entirely new to him may result in vomiting.

I have already spoken of the irregularities of feeding and the resulting overloading with vomiting as an expression of this situation; and I have already considered the high-strung mother with the nervous, restless youngster who will vomit at the slightest distraction or irritation. One of the earliest evidences of an approaching acute infection in a child is vomiting. This may persist during the entire illness, but is more likely to occur only during the first day of the disease. Though appendicitis is rare in infancy, it must be considered as a likely cause for this condition.

There is no perfect substitute for maternal nursing. Nearly all women are capable of nursing their infant. Breast feeding will result in a stronger body more capable of combating infections. Breast feeding will guarantee a lowering of infant mortality. Breast feeding will prevent many of the nutritional diseases of later infancy.

If we remember all these facts and do all we can to encourage maternal nursing we will have done our duty.

PREVENTIVE MEDICINE AND SCHOOL HYGIENE.

By Merrill Champion, M.D., Director, Division of Hygiene, Massachusetts Department of Public Health.

SCHOOL Hygiene may be defined, speaking in dictionary fashion, as the science of the laws of health as they apply to the school child. Translated into the terms of school administration, school hygiene has to do with the practical measures taken by school and health authorities to safeguard the physical and mental health of the children in public or private schools. Its contacts embrace both school and home; they even, under certain circumstances, reach out to the factory or other industrial establishment.

Strategic Position of the School.

It should be acknowledged at the outset that the school is not the ideal place to begin to put into practice health promotion. The school age is a period some six years and nine months too far advanced for that. The school does, however, offer facilities which cannot as yet be duplicated elsewhere. Here the children are gathered together in easily accessible places. They are under discipline. They have here leaders whose job it is to teach them things and who are presupposed to take a personal interest in them. Furthermore, public opinion is now firmly crystallized to the effect that community funds raised by taxation may properly be expended for the care of the education and health of this class of our population. In this State we even have authority of law, which prescribes for cities and towns the services of school physician and school nurse. With all this machinery provided, it is no wonder that child hygiene is often thought of in terms of school hygiene.

Relationship to Preschool Care.

None the less all of us who are sincerely interested in school hygiene must help to stress attention to the preschool child as a still more important field in many directions, such as nutrition, mouth hygiene, and the formation of good mental and physical habits. Certain sound authorities feel that the real work in mouth hygiene is done before the second year of life. It is better to send a child to school free from defects and with good health habits than to have to delay the whole school system while adjustments are being made.

Reason for School Hygiene.

Let us consider now for a moment the reasons behind such service on the part of the State. The original idea back of the whole procedure was probably that medical supervision of the school child offered superior advantage in the control of communicable disease, and this is undoubtedly true. It is now considered good practice to keep the schools open during times of epidemic since in this way greater oversight of the children may be maintained.

In the meantime a deeper sense of responsibility to the child himself has grown up. We are beginning to realize that we are doing a considerable injustice to the child if we condemn him to confinement within four walls for a great part of the day without seeing to it that his environment during this period is as sanitary as possible; that he has a fair chance to acquire an education without running the risk of losing his health.

Not only is his environment to be looked out for: we have gone farther. The law requires the teaching of physiology, which consisted at first of meaningless repetitions of dry facts. Now we realize that the important thing is the teaching of health habits at an age when habits can be formed or changed, so that a new chapter has been added to school hygiene.

Finally, another reason is becoming apparent for school hygiene. It is that we have a right to believe that it is financially advantageous to the school system. If medical supervision can lessen communicable disease and raise the standard of health amongst school children, it is money in the pocket of the taxpayer who does not have to spend so much on "repeaters". More statistical evidence is needed, though, before this probably true argument can be effectively used.

Scope of the Examination.

Considerable discussion has arisen at times as to what should be the aim of a physical examination of the school child. Some hold that it should have the same object in view as does the examination by the pediatrician, namely, to make a complete diagnosis and afford a basis for recommendations as to treatment. On the other hand, a larger number would have the school examinations serve as a sort of screen, to separate out the normal children from those in need of attention at the hands of the family physician or elsewhere.

The latter position seems the more tenable. The obligation of the school has already been referred to. It does not supersede, however, the obligation of the home. The obligation of the school is to furnish the child a sanitary workshop and to warn his parents of deviations from the normal in mental or physical health. There is also self-interest, so to speak, which would save the school the expense of trying to educate children handicapped by ill health. On the other hand, a more serious matter far than physical defects is loss of a sense of responsibility on the part of the parents.

School Clinics.

Let us carry this idea a bit farther. How about school clinics of one sort or another? Do they come under the ban or are they legitimate extensions of the principles of school hygiene? It would seem to the writer that they do not come under the latter category; or in other words, that school clinics are rather an anomaly. They represent an attempt on the part of an educational body to furnish medical treatment at public expense. Time does not permit an extended discussion of this point and it will have to be left with the more or less dogmatic expression of opinion that treatment clinics belong with hospitals or dispensaries or some other private agency.

Novelties in School Hygiene.

One could hardly leave this phase of the subject without passing reference to some of the newer attempts at handling the problems involved in school hygiene. For some time there have been suggestions that what we need are "normal diagnosticians" — persons not medically trained who would examine the children to determine whether or not they were in normal health. In the State of Virginia this work is being done by the teachers who give what is referred to as an inspection. In the Detroit schools teachers examine the pupils for physical defects exclusive of those of heart or lungs. If something abnormal is found by the teacher, the school physician repeats the examination. Otherwise, the latter examines only heart and lungs.

Such variations in school hygiene practice may be regarded in the nature of experiments which time will take care of in one way or another. It is hardly fair to pass judgment on them until they have had a longer trial. A priori reasoning, however, would seem to class them as of doubtful permanent value.

THE SCHOOL AS A RESEARCH STATION.

There is another aspect of school hygiene which should commend itself to physicians. In the opportunities offered for the study of the child in reasonably normal health there ought to be much to appeal to the man who likes to brighten his routine work by a search after some new fact. There is a wealth of material buried in the record files of the towns which have tried to do conscientious school work and with the more general use of the new prescribed record form in this State such material ought to be more plentiful still.

THE SCHOOL PROGRAM OF THE FUTURE.

It is hard to say, of course, just what turn developments may take in this field in the future. One might venture, however, to forecast the following staff to handle school hygiene for a city of 50,000 or even less. This list is similar, though not identical, with that suggested for a town of 25,000–30,000 by the Advisory Committee on Health Education of the National Child Health Council.

(*a*) *A full time medical director of school health work* — such a man would have to have special training and experience for the job. He would not, of course, be expert in all the activities he would have to supervise but he would be familiar with them in a general way.

(*b*) *A sufficient number of assisting part-time physicians* to handle the routine examinations, sanitary inspections, examinations for working certificates, and control of communicable diseases.

(*c*) *A staff of trained school nurses.*

(*d*) *At least one nutritionist* to serve as a consultant to school nurses and teachers and to supervise nutrition classes.

(*e*) *Dental hygienists* — to teach mouth hygiene to the pupils and teachers and perhaps to do prophylactic cleaning of the teeth.

(*f*) *Teachers of health habits* — every school teacher should be taught to become one.

(*g*) *A supervisor of mental hygiene* and ungraded classes.

(*h*) *Teachers of physical education*, either part of the above system or in close alliance with it.

The director of this program should have the status of an assistant superintendent of schools. The rules and regulations under which he works should be laid down by a joint board made up of the school committee and the board of health, to the end that the two great municipal boards interested in the health of the school child bring their joint resources and authority to the problem of promoting the physical and mental health of the child of school age.

WHAT CAN YOU PLAY?

BY FLORENCE A. SOMERS, ASSISTANT STATE SUPERVISOR OF PHYSICAL EDUCATION.

WHAT can you play? I do not refer to bridge or to a musical instrument. They are all right in their places. But what real game, the kind that brings color to your cheeks and joy to your eyes, can you play?

It is said that the average American does not have to learn to work — it seems to be born in him; but the average American adult does have to learn to play. Why is it that we throw off our habits of play at the same time that we cast away our childish clothes? We seem to think, now that we are grown up, that we must not indulge in active play, and we plan henceforth to get our recreation from theater-going and automobile rides and other dignified amusements. Perhaps this is an idea which has come down to us from our Puritan ancestors. In their code, it was almost a sin and unbecoming to one's state in life for an adult to enter into any of the sports of the younger generation. The following sentences were taken from a religious document published in 1792: "The students shall be indulged with nothing of what the world calls play. Let this rule be observed with the strictest nicety, for those who play when they are young will play when they are old." And now we teach the children in the schools to play, in order that they may know how to play when they are older. For it is the game or activity which you have already learned in youth that you will take up when the doctor tells you: "You really must get out of doors more — could you not spend a month in the South? Or if that is out of the question, perhaps you play golf?" Golf is a splendid game for the person who is no longer young, if she learns to leave her cares behind her as she goes to the links, and enters into the spirit of the great out-of-doors. There should be no worry over the score, no fussing about the clubs; the mind must relax with the body to reap the full values of the game.

And there is tennis! How many of you who have the opportunity to play tennis do so? In some ways it is a better game than golf — it is more active, and it has the advantage of being played against an opponent or with three other people.

But what of the many who have no chance to play either golf or tennis? Must they therefore be content with taking their fresh air and exercise in their automobiles or in the rocking chair on the front porch? No, indeed!

How many of you who have children ever play with them? Do you feel it beneath your dignity to go out of doors with them and enter into their games? I wonder how many of you have ever played a good game of ball, or hide and go seek or tag with your children? And there are always neighborhood children when there are no children of your own. How many of you know that the game of volley ball may be played by two people or a dozen? How many have felt the game of quoits pulling you out of doors every night during the summer? I might go through a long list of games which adapt themselves readily to small yards and to small or large families.

There are incalculable benefits which would result from this kind of play. It is difficult to decide which to place first as the most important — whether it be the benefit to your health, or the joy and relaxation from mental cares which come to you, or the increased admiration and respect which your child has for you. They are all of the utmost importance. Do you realize that a child has an entirely different opinion of a grown person when he sees that this person can actually throw a good ball, or that he is fast enough on his feet to dodge the pursuer in a game of tag? The child feels that you are a different being; you are now more or less on his own level, and the new feeling of companionship is well worth inspiring. Remember that in trying to understand the little world in which the child lives, you are doing good unto yourself, also. There is nothing in the world that can compare with the spirit of youth, and we should value any contact that we can make with it. We all grow old much too fast.

How much finer to possess the optimism and the ingenuity of the child in the verse:

"What kept you so busy yesterday?
  'We built a new tree-house up ever so high
And lived there all afternoon, sister and I;
  I think a tree is a grand place to play.'
What will you do when tomorrow comes?
  'How can we tell? If the sun shines bright
We'll race in the meadow and fly our new kite;
  Or we'll march in the attic to the rain's fairy drums.'"

or to feel the inspiration which Robert Louis Stevenson breathes in his little song:

"Happy hearts and happy faces,
Happy play in grassy places,
That was how in ancient ages
Children grew to kings and sages."

than the boredom so typical of many of our friends, expressed in:

"Nothing to breathe but air;
Nothing to eat but food,
Nothing to wear but clothes,
To keep us from going nude!
Nowhere to go but out,
Nowhere to come but back!"

Our young mothers need to discover Health-in-Play, and Happiness-in-Play, both for themselves and their children. We are frequently urged to have a hobby — to find some interest which is quite apart from our regular routine work. What better hobby can you imagine than a play hobby — play for yourself, play for your children; play for health; play for happiness?

It is a broad enough field to keep one busy for all the time they can afford to put into it, and there is an ever-increasing library on the subject of play. There is the planning of the right kind of games and amusements for your children of different ages, for children do not instinctively know the best kind of games and activities; there is the home manufacture of play equipment, which may range from a bean-bag to a horizontal bar or trapeze; and then there is the actual trying out or experimenting with the results of your study. This is a hobby that offers mental stimulation, relaxation from home cares and wholesome exercise. You will be happy in knowing that you are giving your children valuable guidance in their play life, and you will gain immeasurably in that you will partake of their spirit of youth and enthusiasm, a very renewal of life.

There is truth in the saying that "we stop playing not because we grow old; we grow old because we stop playing."

THE HEALTH OF THE WORKING CHILD.

By Madeleine H. Appel, formerly Secretary, Massachusetts Child Labor Committee.

EVERY year in the United States a million and a half sick beds are filled unnecessarily and seventy-two people die every hour because ordinary preventive measures have been neglected. You have heard, too, many times that 35% of the men drafted for military service were rejected as physically unfit. The moral of these figures is simply this: If we want to develop strong men and women, we must start with children, and we must not forget that this means all of our children — not only those at their desks in school, but the million others who are at work all over the country in the factories, shops and mills, and in the cotton and beet fields.

That we *have* been forgetting them is shown by the story of little Mary S——. She left school at fourteen to become a doffer in a Massachusetts cotton mill. The year before she had suffered from a severe attack of rheumatic fever, and as a consequence, her heart was very weak. In fact, she could only work a few weeks at a time, but she kept on until finally she broke down with a severe case of valvular heart disease. Mary should never have been allowed to go to work in her weakened condition. Unfortunately her case is not an isolated one.

For the very purpose of preventing such tragedies as this, 22 states in this country have laws requiring a physical examination of every child entering industry. In seven other states and the District of Columbia, an examination may be given if it appears to be necessary. These examinations, if well administered, provide an effective medium for constructive health-building. They offer a splendid opportunity to see that children are in good physical condition before they enter industry and to prevent their going into work which would injure their health.

Tony M—— (of New York) is a good illustration of what can be done. He appeared for examination at the working-paper office in the Borough of Manhattan and was first put on the scales. He was a thin, sickly-looking lad, so the nurse was surprised when the scales registered him overweight. Then she noticed a suspicious looking lump in one of his trousers' legs and when she investigated she found an iron shoe form, used by cobblers in mending shoes. Then a doorknob appeared and bits of iron junk. Fearing rejection, Tony had loaded up, and cried with disappointment when his trick was discovered. The story has a happy ending, however. Tony was so much under weight that arrangements were made to send him away into the country for the summer, and by fall he had gained so much that he was ready for work.

Unfortunately, there are many places where the examination is hasty and superficial and is put to no constructive use. An investigation made by the Massachusetts Department of Labor in 1919 showed that in 54 out of 77 places in this state where 55,701 children were examined, not a single child has been rejected. The investigation showed the unsatisfactory methods which were used in some places. For instance, one physician was accustomed to have the children line up and file by his big roll top desk. Then, with only a casual glance, he signed their cards one after another, in quick succession. When one child bumped into his desk he discovered the lad was blind and refused him a certificate, but the rest he passed without question.

Take another instance, disclosed by an investigation made in 1924 by the Massachusetts Child Labor Committee, which found that of 22,448 children examined in 21 Massachusetts towns and cities only 495 or 2.2 per cent were temporarily refused a health certificate, while there were only 3 permanent refusals. "Well, son, what can I do for you?" and the kindly doctor turned to the next patient, a 14-year old boy. "Please sign this," was Jim's answer as he held out a card which says that the applicant possesses sufficient health to work at the job cited and which must be signed by a physician. This doctor was conscientious and after a brief examination, which disclosed a bad case of heart trouble, refused to sign the card. Weeks later he was called to Jim's home and discovered him to be in a serious condition due to his industrial work. How did this come about when the doctor had refused to sign the card? Easily enough. Jim had simply taken the card to another physician who had been either too busy or too careless to examine the child.

Why do such things happen? Because the public at large has taken too little interest in the health of the child entering industry. School physicians to whom the work of examination is frequently assigned have been so burdened with other duties as not to have sufficient time for this part of their work. Moreover, the law allows any physician to certify the child's fitness for employment, whereas this work of examination and certification should be done only by a school physician or a physician especially appointed for the purpose. Properly carried out, pre-examination of the child going to work would mean the prevention of illness and suffering later in life, and prove profitable to the employer through less absenteeism and inefficiency from ill or half-well employees.

Excellent work is being done in some cities here and there throughout the country. In Chicago a special corps of physicians is assigned to this work of examining children for industry. A thorough examination is given and repeated each time a child changes his employer. If defective conditions are found, advice is given for their correction. Each month, about a third of the children are temporarily refused certificates until the necessary treatment has been secured. Malnourished youngsters are assigned to special nutrition classes, or sent away to a camp which is maintained for this purpose. Employers are interested in the children who come from this camp and one man was interested enough to arrange to have one of the boys receive milk at the factory each day.

Leading employers all over the country are maintaining a health service in their factories. This does not mean engaging a doctor who will merely give out pills, but providing advice and guidance in health habits. Periodic examinations for all employees under eighteen is the rule in one concern which I know of, and it has resulted in improvement in weight and general health in almost every instance where individuals were below par.

Continuation schools, where these have been established, offer a splendid chance for effective care of the health of boys and girls. These schools have been established in 26 states and working children attend a few hours each week during their working time. A study made in the Girl's Continuation School in Newark, New Jersey, shows that many of the girls are under-nourished, under-developed, and ignorant of the fundamentals of personal hygiene. In addition to instruction along these lines, an effective health program should include periodic examinations, advice regarding the correction of defects, physical training and wholesome recreation. In most places, the health service for the regular public schools has not been extended to the continuation schools. This should be done without delay.

MATERNAL AND INFANT HYGIENE SECTION.

COMPILED BY SUSAN M. COFFIN, M.D.

500 "WELL" PRESCHOOL CHILDREN.

IN a group of 500 babies and preschool children recently examined at the Well Baby Conferences, 172 were under 1 year of age, and 322, 1 to 6 years. With only 78 of these children were no defects noted. Dental, tonsil, and posture defects stood out prominently in the older group. 213 showed tonsil defects though not all showed need of operation, as enlarged but smooth, clean tonsils were not considered harmful unless large enough to be obstructive. We feel that these cases need examination at regular intervals by the family doctor. 114 children needed dental attention and many more needed better home care of the teeth, especially better diet and cleanliness. These children needed coarse foods to chew — they had too many soft mushy foods that could be — and were — "swallowed whole." One mother suggested that as her children were "always chewing gum," hard foods were not necessary, but we could not agree with her.

Many of the children (156) showed indications of rickets: — flaring or beaded ribs, funnel or pigeon chest, late closing of fontanels, knock knees, bow legs, enlarged epiphyses, etc. Every one of these defects could doubtless have been prevented, and fortunately in most cases cure is still possible at this early age if proper diet and good hygiene can be obtained. Right food, orange juice, cod liver oil, fresh air and direct sunlight, work miracles with rachitic children.

Poor posture is noticeable even with these very young children and is not confined to those showing rachitic indications. Winged shoulder blades, hollowing chests, protuberant abdomens and "turned out" feet are very common.

Easy, amusing exercises and proper shoes will do much to correct the simpler forms of bad posture, but expert advice is needed in some cases. In spinal curvature, whatever the type, the possibility of bone tuberculosis though rare at this age should be considered. Flat feet are very often overlooked in preschool children and we saw many cases of it. Wrong shoes are extremely common — they are too short, narrow toed, and too stiff. Short, much shrunk socks, with too tight garters, are also common, and are due to the mother's not understanding the harm done. She is glad to learn how to provide better footwear at the same cost and often quite delighted to learn that "going barefoot" on the sand or in "clean dirt" in summer is highly beneficial.

Systematic habit training is more or less a new proposition to many of the mothers who came to the Well Baby Conferences. Training for good habits is better to emphasize than training to break "bad" ones. Thumb sucking, nail biting, and enuresis are three common "bad" habits which cause mothers much anxiety and they are glad of any suggestions along these lines. While bladder training is very helpful in enuresis in many cases, it should be emphasized that the experience of a physician is often needed to make sure that there is no organic cause behind it, and that thorough examination of the genitalia and urine is most important in every persistent case.

Thumb sucking if taken early is comparatively easy to cure. Wearing the elbow pasteboard cuffs works well.

Nail biting is more difficult. Mothers have frequently to be reminded that it is nearly impossible to teach a child not to bite his nails if he sees mother doing it right along.

We can only quote 142 cases in which breast feeding was definitely known to have been given for six months or more. We found 34 children over a year old still being breast fed which caused one of our nurses to suggest we may need a "weaning campaign" as well as a breast feeding one.

The mothers had prenatal care for 3 months or more in 224 cases, but there was by no means adequate prenatal care in every case. Many mothers feel if they "see the doctor" three or four times and send their urine once or twice, they are really doing all they should. And many doctors lack time or interest to properly instruct them. Here the nurse is again invaluable. 119 mothers were definitely known to have had no prenatal care whatever. This is a problem for all of us.

In our enthusiasm for correcting defects in little children, we should not forget the importance of healthy mothers. Not only is maternal mortality a serious subject, but the importance of maternal morbidity in its relation to children's health can hardly be overestimated.

Rarely do we see a mother at the Well Baby Conference who is not anxious to know what her child's defects are and what can be done to remove them and so prevent serious results in late years.

It is up to all of us, doctors and nurses especially, to provide intelligent instruction for those so eager to learn, and also to increase our present inadequate facilities for preventive and corrective work during the prenatal, infant and preschool periods.

CHILD HEALTH LIBRARY.

EDITED BY J. C. GEBHART, INTRODUCTION BY HAVEN EMERSON, M.D. (SMALL POCKET EDITION.)

Titles.

Prenatal Care and the Baby's Birth.
Babies: Their Feeding and Care.
The Neglected Age (2 to 6).
Dangers of the School Age.
Communicable Diseases of Childhood.
Hygiene of the Mouth and Teeth.
What Children at Various Ages Should Eat.
How Children Ought to Grow.
Psychology of the Child.
Educational Problems.

"To know a child is to love it, and the more we know it, the better we love it.

To know, love, and serve childhood is the most satisfying, soul-filling of all human activities.

It rests on the oldest and strongest and sanest of all instincts.

It gives to our lives a rounded-out completeness as does no other service.

No other object is so worthy of service and sacrifice; and the fullness of the measure in which this is rendered is the very best test of a nation and a race and a civilization." — G. STANLEY HALL.

THIS IS NO FAIRY TALE.

We hear a good deal about the unwillingness of modern women to nurse their babies. Let us think this over for a moment and see whether there may not be other reasons than unwillingness for the failure of so many mothers to provide an adequate supply of nature's food for their babies.

All good maternity hospitals report a large percentage of their cases breast-fed at the time of discharge twelve to fifteen days after delivery. Physicians in private practice everywhere find similarly that breast-feeding goes on smoothly for the first few weeks. The trouble begins in the vast majority of cases at some time after the first two or three weeks.

Everyone is agreed that a certain degree of tranquility of mind is a great asset to a nursing mother's equipment if not an essential factor in successful breast feeding.

What is there which would tend to cultivate such tranquility of mind in the life of the average young mother on her return from the hospital or at the time her nurse — engaged for two weeks — leaves and she takes up her accustomed household duties — plus the care of the new baby?

All was well when Mrs. Youngmother took the baby from the nurse's arms with the sudden and almost overwhelming realization that from that time forth the responsibility for this little life was to rest for the most part on her shoulders; that she with her husband's help must protect it, care for it and train it to fill the great place in the world she sees awaiting this — her first child. She does not feel any too strong at that particular moment to face such a huge responsibility.

The first night Mrs. Youngmother does not sleep very well. She is conscious of the care of the baby and is afraid she will not wake when it cries. Baby, too, seems to feel the change of surroundings and after taking his two o'clock feeding declines to go to sleep for several hours. Father finds this somewhat irritating and it worries mother too for she knows that he has work on hand that requires his best effort the following day. At last baby quiets down and Mrs. Youngmother drops to sleep a few minutes before the alarm clock goes off at six o'clock, time for baby's next feeding and after that for starting the day's work. This time baby goes to sleep after nursing as a well-regulated infant should do, but mother gets up, feeling a bit tired after her wakeful night and she thinks comfortingly of the rest she will have while baby has his nap later on.

Breakfast is late, for Mrs. Youngmother has had to hunt for each individual spoon, knife and teacup she needed and could have laid her hand on instantly in the days before a stranger took over the housekeeping. This she finds somewhat annoying and as soon as the dishes are done, she proceeds to straighten out the pantry and make a list of groceries needed.

And now it is time for baby's bath. She carefully tests the water as the nurse has taught her, selects the sheer lawn slip and the soft flannel wrappings and lays out all the dainty outfit she and her friends have taken such pleasure in making ready for this day. She smiles as she remembers the many discussions as to whether the ribbons should be pink or blue.

She gets through the first bath pretty well although as she gently runs her hand over the soft spot on baby's head, she is quite certain it is larger than it should be and the navel surely did not bulge so when she watched the nurse the last time she bathed the baby. Mother is glad to lie down with baby for a few moments' rest while he takes his next feeding but before he has finished, a loud rap at the foot of the kitchen stairs reminds her that the grocery man is waiting for his order. Fortunately, baby is not aroused by this unceremonious announcement and Mrs. Youngmother has a little free time in which to unpack her suitcase, pack up the laundry, clear up the bath things, dust and set the house to order, set the table for dinner, pay the insurance man, telephone her mother that she is safely ensconced at home, assuring her that she is following her injunction to "take it easy for a while." Suddenly, she remembers that she was to take some gruel each morning so she takes from the stove the oatmeal which she carefully set on to cook last night and sits down to eat it. She realizes that the house is growing cool so runs down cellar to find the furnace needed a bit of coaxing. She opens the drafts and later returns to close them. She sweeps off the front piazza which apparently has not been touched since she went away, peels the potatoes, cleans the spinach (for the doctor said she must eat leafy vegetables), makes a custard for dessert and gets the meat ready to cook.

She sits down to sew for a few minutes when the telephone rings — kind inquiries from friends so glad to know she is home and getting on so well.

Now it is time to finish getting dinner for it must be ready on time as father has only a hurried dinner hour. Seated at the table just on time, he urges her to eat but she says she cannot — she is too tired to eat. A few words ensue, followed by tears, and he goes off troubled but helpless.

By the time the dinner dishes are done and put away, baby is awake and ready for his afternoon feeding. Mother recalls her long-dreamed-of expectation of taking him out every pleasant day so though she wishes there were time for a nap, she puts on the little bonnet and coat her mother took such pains in making, tucks baby into his carriage father so proudly showed her on her return home, and wheels his majesty up and down the sunny side of the street for an hour.

When he comes in, baby is fussy and she cannot think of all the causes for crying which she has heard about and looks in her baby book to find the answer when the doorbell rings and visitors arrive. They tell her what a wonderful baby she has, raising their voices to be heard above his screaming and they suggest various causes and remedies for his fussing. By the time they have gone, she must get supper and again she does not feel much like eating.

And so it goes on through the first week, the baby becoming more and more fussy, the milk supply more and more scanty. Both father and mother become more and more worried. The tranquility of mind so necessary to a nursing mother seems to be far out of reach.

At last father calls the doctor who deplores the inability of the modern woman to nurse her baby and puts the baby on a formula.

The next day, the local paper announces that the doctor read a paper at the Medical Society in which he expressed disapproval of the increasing tendency among mothers in our highly civilized life to neglect their maternal duties in favor of bridge parties, cigarette smoking and women's clubs.

Is there a lack of understanding somewhere? If so, where?

"Keep out of Ruts: a Rut is something which
If traveled in too much, becomes a Ditch"

"Men rightly held when yet the world was young
That in the Sun a Charm of Health is hung —"

"One strives for Health and cures his Body's Ills
Another mopes and gathers Doctor's Bills — "

Feeding the Bottle Baby

A few babies, unfortunately, for various reasons cannot be nursed, and a substitute for mother's milk must be provided. The best substitute for mother's milk is properly modified cow's milk, as prescribed by a physician. The ordinary problem of modification of cow's milk is one of adapting it to the digestive tract of the baby, and at the same time providing as far as possible a normal supply of fuel and building material. In its simplest form this consists of diluting whole milk with water to reduce the protein, and adding sugar. The facts to be considered in making up the formula are:

1. Weight of the child.	
2. Total fluid requirement	2.5–3 ounces per lb. body weight.
3. Total milk	1.5 oz. per lb. body weight.
4. Total calories	40–45 calories per lb. body weight.

In some places fresh milk is not obtainable and other forms have to be resorted to. The commonest of these are dried milk, condensed milk, and evaporated milk.

Dried whole milk:

This is powdered milk, and it is put out under various trade names. In the best prepared dried milk the contents are little changed. To prepare a milk equivalent with it, add 1½ cups of milk powder to 1 qt. of cool, boiled water. Dip the powder loosely from the can with a spoon, taking care not to pack it in the cup. Mix the powder and water thoroughly with an egg beater. The proportions of the mixture then are about 4% fat, 5.7% sugar, and 3.71% protein. Fresh milk contains 4% fat, 4.8% sugar, and 3.18% protein. The dried milk mixture contains about 1% more sugar than fresh milk, which must be remembered in making up the formulas, and less sugar used; otherwise use just as fresh milk in making formulas.

Condensed Milk:

This is made by adding large quantities of sugar to milk, and evaporating. The large amount of sugar makes it bad for feeding babies, as it makes soft, fat babies with poorly developed bones. *Never* give as a permanent food when fresh cow's milk can be obtained. It is inferior to dried milk.

Evaporated Milk:

This is made by simply evaporating fresh milk. It is not to be desired if fresh milk can be obtained, but it is far more desirable than condensed milk.

Infant Foods.

There are numerous infant foods advertised on the market. Most of these contain large amounts of starch and sugar, and small amounts of fat and the materials needed for growth. Because of this they tend to produce flabby fat babies, and do not make firm, hard muscle, and strong bones.

Foods other than Milk for the Bottle Baby:

Do not make a separate meal of these foods. It is usually best to give them just before or after a feeding.

Orange Juice — 1 hour before one of the feedings.
At 2 months give
1 teaspoon strained, diluted with an equal quantity of boiled water.
Increase the amount of juice gradually to 3 tablespoons.

Cod Liver Oil
At 2 months give
Pure cod liver oil, 15 drops 3 times a day.
Every bottle-fed baby needs cod liver oil.

Oatmeal Water
At 5 months
Oatmeal water may be used instead of plain boiled water to dilute the milk.

To make
Mix $1\frac{1}{2}$ tablespoons of rolled oats with an equal amount of cold water.
Add 1 *pint* of boiling water. Cook 5 minutes over direct heat.
Steam in top of a double boiler 1 hour. Strain through cheesecloth or very fine strainer.

At 6 months
Oatmeal may be increased to 3 tablespoons cooked in 1 pint of water as above.

Vegetable Broth
At 6 months
4 tablespoons of broth may be given once a day.

To make
Use the concentrated juice in which mild flavored vegetables as carrots, spinach, peas, or string beans were cooked. Meat broth from which the fat has been taken, may be added.

Toast or Unsweetened Zwieback
At 6 months
Let the baby chew on a piece of dry toast or unsweetened zwieback.

Cereal
At 8 to 10 months
2 or 3 tablespoons well cooked cereal, strained. Cook cereal 3 hours over hot water. Give unstrained in case of constipation. Use oatmeal, wheatena, Ralston's, etc.

Vegetables
At 10 months
Give 2 tablespoons of mild flavored vegetables such as spinach and carrots thoroughly cooked and rubbed through a fine sieve.

No scheme of feeding can be followed slavishly. Babies show individuality in their capacity for foods as in other respects.

INFANT WELFARE IN NEW ZEALAND.[1]

"According to the recently published report of the Director-General of Health, New Zealand is in the proud position of being able to lay claim to the lowest infant mortality rate in the world, namely 43.8. At the same time, the birth rate reaches the comparatively high figure of 21.54, thereby furnishing additional evidence that a high birth rate and a high infant mortality rate are not necessarily connected. For the city of Dunedin the figures are even more remarkable, for during the last two years there have been no deaths from diarrhœa of children in the first two years of life, while over a five-year period the mortality from diarrhœa in that age group is only 0.8 per 1,000 births, and for the whole country, 3.5 per 1,000. This remarkable achievement is due in no small measure to the excellent work inaugurated by Dr. Truby King, the Director of Child Welfare, and to the activities of the Plunkett Society, which commenced its work in 1907. The welfare service, however, is not content to rest on its laurels, but is casting about for ways and means of making still further reduction on this low mortality figure. Fuller analysis of the tables show that while enormous savings have been effected in regard to lives of infants after the first month of life, the first month mortality has remained practically stationary in the neighborhood of 30 per 1,000 live births for the last fifteen years or more.[2] A striking comparison in this respect has been worked out by Dr. C. J. Brenkman (Chief of the Medical Statistics Department) with the city of Amsterdam, which also boasts a very low infant mortality rate of 47 per 1,000.[3] Here, the first month mortality has fallen from 23 per 1,000 births in 1905 to 13 per 1,000 in 1922, but after the first month, the infant mortality rate in Amsterdam is more than double that of New Zealand, namely, about 40 per 1,000, as against 20–15 per 1,000. Closely related with this early period mortality is the relatively high number of stillbirths (32 per 1,000 live births, 1923) that occurs annually in the Dominion, also the high maternal mortality of 5.1 per 1,000 births. It is clear, then, that if further saving of infant life is to be effected, it will be in the direction of better attention at, and immediately after, birth, that the best results will be obtained. The Dominion possesses many advantages, climatic, social, economic, not enjoyed to the same extent by other countries which show better maternal mortality returns, but it is admitted that it lags behind in providing at the time of birth, the skilled assistance, which in another direction, has proved so invaluable in the later months of infant life. With such clear indications for future action it need not be doubted but that the Health Department, New Zealand, will rise to the occasion and call upon the medical and nursing professions to remove the last remaining reproach upon its infant and maternal mortality record."

GETTING THE CHILD READY FOR SCHOOL.

In the United States children under five years constitute nearly 12% of the total population; in this 12% occur 21% of all the deaths in this country. About three million infants who are born alive do not live to celebrate their fifth birthday. Yet 70% of these deaths are preventable. This is a civilized country. What are we going to do about it? (From "The Preschool Age," Mark S. Reuben, M.D., New York.)

In White Plains, N. Y., the infant mortality rate has been lowered from 130 in 1911 to 38 in 1923. This has been accomplished largely by better birth registration, prenatal care, care of mothers during childbirth, education of mothers, regulation of the milk supply, establishment of clinics, and the co-operation of physicians.

. . . .

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[1] Taken from Medical Officer, January 3, 1925.

[2] Massachusetts, first month mortality has been 40 for past three years — over 50 per cent total Infant Mortality.

[3] We are not sure about stillbirth classification in New Amsterdam.

In 20 of the 58 counties of California physical examinations are given to preschool children. The State Boards of Health and Education, women's clubs, local physicians and nurses are all helping in this work. (From "Journal of the American Institute of Homeopathy.")

Fifteen public schools in Washington, D. C., were studied during 1923–24 by a committee of which Dr. Louise Taylor-Jones was chairman, in order to discover the causes of school absences. The grade chosen for this study was the third. The results of the study have been published by the U. S. Public Health Service. It was found that more than 70 per cent of all absences were due to medical problems, more than one-fourth being due to the common cold, and nearly 40 per cent to respiratory disturbances. Boys and girls seemed to be absent equally for all causes. — (U. S. Department of Labor, Children's Bureau, Washington, October 19, 1924.)

"94 per cent of children of school age are in need of immediate dental attention." (Barr, D.D.S., Cleveland, 1925.)

THE COMMONHEALTH.

Quarterly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Frances Klein, S.B., Associate Editor.
Room 546, State House, Boston, Mass.

Overlooking Fundamentals. — When the history of public health is written with enough perspective to view it properly, in all probability we shall see that we have emulated Topsy rather than Plato in our building of a philosophy of public health. We have erected a structure but are now wondering about the foundation. Presumably this was inevitable but the plan has got us into difficulties which will be hard to get out of. Two examples may be quoted.

Years ago visiting nurse associations began their beneficent work. Their fine enthusiasm and pioneer spirit have been large factors in public health progress. But most of the smaller associations did not keep accurate accounts. They did not know what their service cost, did not get the cost from that part of the public which could pay and so accustomed the public to getting below cost service from a private charitable organization. Now necessity drives and the attempt is being made to rectify the error but it is like taking candy from children to get the public to pay for what it has been accustomed to get for nothing.

Again, clinics of all kinds are flourishing like the bay tree. They are sadly needed in most places. But a treatment clinic represents medical service which should be paid for by the recipient of the service. Why should he get it free or below cost — if he is able to pay for it — any more than he should get free clothing or groceries? Why should the municipality give it to him?

Clear thinking is needed on the relationship of private charity to public health and on the relationship of municipalities to treatment clinics as distinguished from educational conferences. It is not too late to get down to fundamentals if only we focus sharply.

The Dental Hygienist. — A new teacher is growing up in our midst, of the feminine persuasion like most teachers, young and full of enthusiasm. She is the apostle of prevention in dentistry — real prevention. Her glory is not to slay: her duty is to save. For her no gory field of battle among slaughtered molars and bicuspids; her ministrations are not accompanied by the wails which attend the filling of tortured incisors. Her weapons are not probes but orange wood sticks. Instead of the devilish whirr of the burr we hear her kind voice extolling the advantages of a balanced diet for the prevention of decay. And the children rise up and call her blessed and are glad to see her again.

On the one hand, the weary round of patching up and patching up again; on the other the slow but sure results of education and prevention. Which is the best bet for the municipality?

The New England Health Institute. — Another New England Health Institute is coming. It will be held in Portland, Maine, May 4th to 9th. Sessions are planned to interest all groups of public health workers — the administrator, the laboratory technician, the practicing physician, the educator.

The Institute is one of the broadest developments in public health work, since it brings together for discussion of problems and exchange of ideas those actively engaged in public health improvement.

Schedule of Courses and Section Chairmen.

I. Public Health Administration . . . . 9 lectures.
Charles A. Weaver, M.D., Epidemiologist, New Hampshire State Board of Health.

II. Preventable Diseases . . . . 9 lectures.
Eugene King, M.D., City Health Department, Providence, Rhode Island.
III. Sanitation and Engineering . . . . 8 lectures.
I. V. Hiscock, D.P.H., Assistant Professor of Public Health, Yale University, New Haven, Conn.
IV. Tuberculosis . . . . 6 lectures.
Harold W. Slocum, Director of Tuberculosis Division, Vermont State Department of Public Health.
V. Venereal Diseases . . . . 6 lectures.
Benj. B. Foster, M.D., Chief of Venereal Clinic, Eye and Ear Infirmary, Portland, Maine.
VI. Child Hygiene . . . . 9 lectures.
Charles F. Wilinsky, M.D., Chief of Health Unit, Boston Health Department.
VII. Public Health Nursing . . . . 7 lectures.
Miss Mary Gardner, R.N., Director, Providence District Nursing Association.
VIII. Social Work . . . . 5 lectures.
Robert W. Kelso, B.A., LL.B., Executive Secretary, Boston Council of Social Agencies.
IX. Mental Hygiene . . . . 6 lectures.
Harry B. Ballou, M.D., Assistant Supt. Mansfield Training School and Hospital, Mansfield, Conn.
X. Industrial Hygiene . . . . 5 lectures.
Halstead G. Murray, M.D., New England Conference of Industrial Physicians.
XI. Foods and Food Control . . . . 6 lectures.
A. M. G. Soule, Chief, Division of Inspection, Maine State Department of Agriculture.
XII. Nutrition . . . . 6 lectures.
Clarence C. Little, Sc.D., President University of Maine.
XIII. Health Education . . . . 5 lectures.
Walter D. Thurber, Executive Secretary, Maine Public Health Association, Augusta, Maine.

May Day. — May Day is a natural "play day," not only by virtue of custom, but also because it comes at the time of year when all nature is a song. The May Pole dance, with ribbons of rose and blue and yellow intertwining, is a symbol of the happiness of young folks and old — a happiness dependent for expression on an interlacing of many individual actions and ideas and purposes.

May Day is play day. It is also a health day. For the outdoors is a challenge to the best in man. It makes him step out prepared — with all the little worries left behind. And when he has played in the outdoors long enough, he can go back and find all the little worries gone.

Course in Tuberculosis at Rutland State Sanatorium. — The Department of Public Health co-operating with the Wachusett Medical Improvement Society announces a course in the diagnosis of pulmonary tuberculosis at the Rutland State Sanatorium May 6, May 13, May 20, at 3 P.M.

May 6, 1925:

History	Dr. M. H. Joress.
Physical Signs	Dr. E. B. Emerson.
X-ray	Dr. Wm. B. Davidson.
Demonstration of Case.	

May 13, 1925:

Laboratory Methods	Dr. Jos. Muller.
Juvenile Tuberculosis	Dr. H. D. Chadwick. Westfield State Sanatorium.

May 20, 1925:

General Management	Dr. E. B. Emerson
Treatment of Symptoms	Dr. H. C. Hubbard.
Artificial Pneumothorax	Dr. Wm. B. Davidson.

Bring Your Stethoscopes.

HEALTH PAMPHLETS FOR THE HOME.

"The Citizen and the Public Health," A. M. Stimson, United States Public Health Service, Washington, D. C. 12 pp. 5¢.

"Prenatal Care," Mrs. Max West, United States Department of Labor, Washington, D. C. 41 pp. 10¢.

"Infant Care," Mrs. Max West, United States Department of Labor, Washington, D. C. 112 pp. 10¢.

"Child Care. The Preschool Age," Mrs. Max West, United States Department of Labor, Washington, D. C. 88 pp. 20¢.

"The Runabouts in the House of Health," Compilation by Hetty L. Sorden, American Child Health Association, 370 Seventh Ave., New York. 62 pp. 15¢.

"Food for the Family," Lucy H. Gillette, Department of Social Welfare, N. Y. Association for Improving the Conditions of the Poor, New York City. 31 pp. 25¢.

"Food, Teeth and Health," Prepared by the Child Federation, Philadelphia, New England Dairy and Food Council, Cornhill, Boston. 11 pp. Free.

"Habit Training for Children," Massachusetts Department of Mental Diseases, Division of Mental Hygiene, Dr. D. A. Thom. National Committee for Mental Hygiene, 370 Seventh Ave., N. Y. City. 13 pp. 10¢.

"What to Tell Your Child and How" (Sex Education), Herman N. Bundesen, M.D., Chicago Department of Public Health. 22 pp. Free.

"Health in Play," Compilation — American Child Health Association, 370 Seventh Ave., New York, N. Y. 43 pp. 25¢.

"Stand Tall" (Posture), Massachusetts Department of Public Health. Free to citizens of Massachusetts.

"The Balance Wheel" (A budget book), S. Agnes Donham, The Association for the Promotion and Protection of Savings, 101 Devonshire St., Boston. 20 pp. 27¢.

This short list of twelve pamphlets was prepared by the Public Health Committee for the Boston Section, Council of Jewish Women, Province Building, Boston, Massachusetts, for the use of parents wishing brief, accurate, and inexpensive information on the health of the child.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of October, November and December, 1924, samples were collected in 112 cities and towns.

There were 1,225 samples of milk examined, of which 263 were below standard, 35 samples had the cream removed, and 21 samples contained added water.

There were 1,008 samples of food examined, of which 170 were adulterated. These consisted of 130 samples of eggs, 16 samples of which were decomposed, 101 were cold storage not properly labeled, and 13 were sold as fresh eggs, but were not fresh; 26 samples of sausage, 10 samples of which contained starch in excess of 2 per cent, 11 contained coloring matter, 1 decomposed, and 4 samples contained sodium sulphite; 1 sample of kiszki sausage which contained less than 20% cereal; 1 sample of beef liver which was falsely advertised as calves liver; 4 samples of soft drink which contained saccharine; 4 samples of scallops which contained added water; 2 samples of vinegar which were low in acid; 1 sample of maple syrup which contained but 10% maple; and 1 sample of butter which was low in fat.

There were 68 samples of drugs examined, of which 3 were adulterated. These consisted of 1 sample of spirit of camphor, and 2 samples of spirit of nitrous ether, all of which did not conform to the U. S. P. requirements.

The police departments submitted 1,812 samples of liquor for examination, 1,677 of which were above 2.75% in alcohol. The police departments also submitted 28 samples of alleged poisons for examinations, 9 of which were morphine, 2 sulphuric acid, 8 opium, 1 cocaine, 1 heroin, 1 cyanide, 1 prescription tested for its correctness and found to be O. K., 1 sample of cinnamon cigarette found to be free from nicotine, 1 sample supposed to be bicarbonate soda was found to contain 62% sodium fluoride, and 3 samples were examined for poison with negative results.

There were 23 hearings held, and 3 warnings issued, pertaining to violations of the Food and Drug laws.

There were 13 samples of coal examined, 9 samples conforming to the law, and 4 samples contained an unreasonable amount of impurities.

There were 99 convictions for violations of the law, $2,370 in fines being imposed.

Gust Anthony, Matthew Christy, Michael Geroutinos, Alfonse Jais, Peter Pappas, Salvatore Rochilla, Abraham Stein, Augustus Karzakas, Nicholas Peters, and James Saites, all of Springfield; Manuel Costa of North Dartmouth; Manuel Mederos of South Dartmouth; John H. Nagle, 2 cases, of Newton; John Josephson and Walter Kileine of Sutton; John Colias, Rocco Serrao, and Nicholas Vrahnos, all of Pittsfield; Edward H. Webster, Charles Thomas and Peter Lases, Samuel Himel, and Anthony Skorupski, all of Worcester; Elvi Lehtonen of Fitchburg; Truman E. Parker, Florence Cocker, and Ceceile Oberle, all of Great Barrington; John A. O'Brien of Lexington; George Engel of Framingham; John P. Shaughnessy of Taunton; James Cantales of Arlington Heights; Warren Proctor of Lunenburg; Fred Topping of Sheffield; Frances Donnelly of Haverhill; and Raymond Gilchrist of Fall River, were all convicted for violations of the milk laws. Elvi Lehtonen of Fitchburg, and Raymond Gilchrist of Fall River, both appealed their cases.

Thomas Brazell, Hanula & Son, and Adolph Tourigny, all of Gardner; Meyer Kaplan of Pittsfield; Great Barrington Bottling Works, Incorporated, of Great Barrington; Meyer Block and Phillip Epstein of Boston; and O. J. Desplaines of Southbridge, were all convicted for violations of the food laws. Meyer Kaplan of Pittsfield appealed his case.

Samuel Solomon and Daniel Kalieva of Springfield; Andrew Budz and Wladislaw Ptak of Housatonic; Israel Bass, Herbert Covitz, Louis Feldman, Carl Flax, James Ivaldi, Isador Jacobs, Theodore Katsos, Michael Moscardini, Abram Wishnick, George Diorio, Morris Firger, Abraham Lipsky, Morris Robinson, and Lewis T. Hawkins, all of Boston; Antonio Abu and Louis Moscatelli of Framingham; James Carlo, John Gorman, Morris Leavitt, Morris Robinson, Eugene F. Roy, Michael Ruberto, Ambrogio Spadafora, John Sullivan, Morris Abrahms, Benjamin A. Andrews, Frank Bevilacqua, and Joseph Scaff, all of Pittsfield; Frank Bajgier, Frank R. Dubiel, Max Kraus, John Kuska, Philip Leader, Stanley Lusnia, Joseph Sroka, and Moses Kantor, all of Chicopee; William Cranshaw of Taunton; Lewis H. Doyle of Arlington; Peter Mysleivy, Emma Tarlo, and John Wydsa, all of Salem; Samuel Weinstein of Roxbury; and Charles Mann and James Savas of Fitchburg, were all convicted for violations of the cold storage laws. Moses Kantor of Chicopee, and Samuel Weinstein of Roxbury, both appealed their cases.

Salem Mattress Company of Boston was convicted for violation of the mattress law.

Waldorf System, Incorporated, Thrift Stores, Incorporated, and James Van Dyk Company, all of Springfield, were convicted for misleading advertising.

Herbert F. Young, and Robert E. Carpenter of Orange; and Morris R. Kaufman and Paltiel Kaufman of Charlton, were all convicted for violations of the slaughtering laws. They all appealed their cases.

In accordance with Section 25, Chapter III of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

One sample of milk which contained added water was obtained from Fred Souza of South Dartmouth.

One sample of milk which had the cream removed was obtained from Philip Apostolue of Boston.

Soft drinks which contained saccharine were obtained as follows:

3 samples, from Meyer Kaplan of Pittsfield; and 1 sample from Chicopee Soda Company of Chicopee.

Sausage which contained coloring matter was obtained as follows:

3 samples each, from Meyer Block and Phillip Epstein, both of Boston.

Sausage which contained starch in excess of 2 per cent was obtained as follows:

1 sample, each, from Meyer & Company of Somerville, Fitts Brothers of Framingham, J. H. Hayden of Medford, and George P. Borlen of Newburyport.

Sausage which contained sodium sulphite was obtained as follows:

1 sample each, from Berkovitz Brothers and Julius Smokler, both of Boston, and from Becker's, Lawrence.

One sample of kiszki sausage which contained less than 20% cereal was obtained from Jozes Kohn of Salem.

One sample of beef liver which was advertised as calves liver was obtained from Lagrange Street Market, Boston.

There were nine confiscations, consisting of 9,210 pounds of decomposed frozen eggs, 20 pounds of tainted chickens, 5 pounds of tainted beef hearts, 8 pounds of tainted pork, 100 pounds of tainted smoked shoulders, 20 gallons of tainted clams, 72 pounds of decomposed scallops, and 85 cans of swelled canned goods.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of September, 1924: — 765,270 dozens of case eggs, 241,702 pounds of broken out eggs, 2,806,669 pounds of butter, 897,335 pounds of poultry, 2,320,337 pounds of fresh meat and fresh meat products, and 3,113,487 pounds of fresh food fish.

There was on hand October 1, 1924: — 12,833,370 dozens of case eggs, 1,061,433 pounds of broken out eggs, 25,050,226 pounds of butter, 3,010,897 pounds of poultry, 9,001,578 pounds of fresh meat and fresh meat products, and 13,378,753 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of October, 1924: — 568,890 dozens of case eggs, 307,052 pounds of broken out eggs, 1,682,309 pounds of butter, 1,485,794½ pounds of poultry, 2,723,181 pounds of fresh meat and fresh meat products, and 3,128,740 pounds of fresh food fish.

There was on hand November 1, 1924: — 9,449,040 dozens of case eggs, 954,905 pounds of broken out eggs, 22,287,570 pounds of butter, 3,733,861 pounds of poultry, 5,654,693 pounds of fresh meat and fresh meat products, and 13,399,261 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of November, 1924: — 324,460 dozens of case eggs, 296,975 pounds of broken out eggs, 1,390,087 pounds of butter, 3,334,542 pounds of poultry, 3,542,369 pounds of fresh meat and fresh meat products, and 1,954,307 pounds of fresh food fish.

There was on hand December 1, 1924: — 6,586,080 dozens of case eggs, 849,600 pounds of broken out eggs, 18,400,944 pounds of butter, 6,363,935 pounds of poultry, 7,164,968 pounds of fresh meat and fresh meat products, and 11,465,330 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, EUGENE R. KELLEY, M.D.

Public Health Council.

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State Examiners of Plumbers	Clerk, DAVID CRAIG.

State District Health Officers.

The Southeastern District	RICHARD P. MACKNIGHT, M.D., New Bedford.
The Eastern District	GEORGE T. O'DONNELL, M.D., Boston.
The Northeastern District	LYMAN A. JONES, M.D., Swampscott.
The North Midland District	CHARLES E. SIMPSON, M.D., Lowell.
The Worcester County District	OSCAR A. DUDLEY, M.D., Worcester.
The Connecticut Valley District	HAROLD E. MINER, M. D., Springfield.
The Berkshire District	LELAND M. FRENCH, M.D., Pittsfield.

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MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., COMMISSIONER

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HEALTH EDUCATION FOR THE STATE.[1]

By A. J. Lanza, M.D., Executive Officer, National Health Council.

THE very considerable amount of attention which health education is receiving from both health and education authorities is an evidence of the interrelationship of various types of public health activity as well as their dependence upon the educational system for achieving their aims. Dr. Emerson has made a statement to the effect that if we were to take the tuberculosis program, the social hygiene program or the child health program and develop them to their logical conclusion, we would have in either event a complete public health set-up. We can say further that the fulfillment of any of these programs depends on their forming a successful working relationship with the educational system. The permanent lowering of the tuberculosis death rates demands a maximum standard of health in the community at large. The time, obviously, to take steps to secure a satisfactory health standard is during childhood. It is then that healthful habits and hygienic principles can best be instilled. If, also, we desire to raise the standards of sex hygiene, to give the man and the woman a rational, well-balanced and dignified comprehension of the proper role of sex in life, it is obvious that we must commence with the child, and the young child at that, if we are not to face the obstacle of false or distorted concepts and undesirable habits.

We have also begun to appreciate in recent years that the mental faculties are as susceptible to supervision and training as the physical ones and that self-control and right thinking can be developed just as surely as we develop gymnastic or athletic ability and that mental faults are as amenable to treatment as poor posture, weak musculature, or adenoids. With the growth and spread of the child health movement, these ideas have begun to be focused with the result that there is an ever widening realization that health is not merely the negation of illness but that it is a positive entity in itself and that it is as practicable to educate for health as for the three R's or any other branch of the curriculum.

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[1] Given before the New England Health Institute, Portland, Maine, May 7, 1925.

1925

No. 2

Probably most children are born healthy, some tend to stay healthy, many need to be specially educated to stay healthy and very often those who start with a handicap can be educated to achieve health.

Likewise the manner of our present life has shown that children need to be educated not only for mental and physical health but for social health also. The distinction between these three divisions of health education may often be more apparent than real, but it is useful and necessary as a means of classifying and directing effort. It is as fundamental as teaching for morality. The child is taught to tell the truth, to respect other children's property, to be obedient and usually to observe certain religious practices that tend to strengthen the moral character. In the same way the child should be taught to practice those habits which tend to foster health and avoid other habits which tend to undermine health. This type of education is being more and more developed as an integral part of the school system.

The Material of Health Education.

It is obvious then at the outset in considering health education that two principal factors are involved. First, there is the question of what we ought to teach — the material of health education; second, how and by whom it is to be taught, i.e., how can we best insure that this material is imparted to the child in the best possible manner — that is the method of health education.

Let us consider the material. We have to do here with health, the proper functioning of the human organism, the healthy mind in the healthy body. Obviously the source of authoritative information must lie in the sciences of anatomy, physiology, pathology, preventive medicine, public health. For administrative purposes, the state has erected machinery to furnish this information, namely the State Board of Health which, drawing upon the experience of the teaching centers and research laboratories throughout the world reflects for our purpose the commonly accepted public health standards that pertain to health education. What is the nature of this material — the care of the special senses and the inculcation of proper habits in regard to cleanliness, eating, sleep, personal safety, and other items of personal hygiene, physical education and the right kind of play, training for mental hygiene and for social hygiene.

Supporting these are the necessary provisions for hygienic environment and for preventive medicine in which we include the remedial and preventive treatment which is often a part of school health work.

We need to be on our guard, in assembling our material, against fads and the faddist whose enthusiasm masks his ignorance, and against chicanery sponsored by the unscrupulous for gain. The field is comparatively new, popular interest is being aroused and the opportunities for exploitation considerable. Our sheet anchor must be the accepted standards of the best scientific thought throughout the world. Our State Department of Health is the logical interpreter of that thought.

The Methods of Health Education.

For methods we must go to the educational authorities. The teacher must convey the lessons of health education to the child and this carries with it the implication that the teacher must derive from an authoritative source the facts and principles of health education. In other words, standard courses on health education must be made available in institutions where teachers are trained in their profession so that they may be as well equipped to educate their pupils in the business of health as they are to teach mathematics or the foreign languages. This is a responsibility that is theirs and cannot be delegated to non-professionals from the pedagogical point of view, although the medical inspector of schools, the school nurse and the physical director may all assist in rounding out the health education course.

It may not be amiss to consider the relative importance of material and method. Usually we may assume that a good workman may do well even with poor tools. In this matter, however, I am not as hopeful. Let us, if we can, conceive of a book of United States history in which the dates are distorted and the facts are perverted; even the most skillful teacher could not hope to teach much history from such a text. This necessity for good material becomes apparent when one considers the avalanche of pernicious magazines, articles, lectures, and other forms of so-called health activity, which for want of a better term, we can only call "bunk," with which we are being attacked. It is everywhere and is pushed forward by well organized commercial interests who know how to blend half truths in an attractive guise.

Co-operation of Departments of Health and Education.

It would seem then that a health education program for the state should be initiated as a joint enterprise between the State Departments of Health and Education. The Health Department can supply the material, give advice, check up results and keep a watchful eye against the intrusion of either worthless or harmful procedures. Upon a working understanding effected between these two state departments the foundation for a health education program is laid. It may be that these departments may not be organized or financed to inaugurate a health education program and the initial impetus may come from groups of private citizens, an energetic Red Cross Chapter, tuberculosis society or child health or other private or voluntary society, and such a society may have to carry the burden of organization and development for a considerable time. The Modern Health Crusader of the National Tuberculosis Association is doing most valuable service in focusing the attention of teachers on simple and important health practices and the same can be said of the Junior Red Cross and the American Child Health Association, but if we are building for permanence and strength, the dual responsibility of these two state departments must not be disregarded. Inasmuch as we are still pioneering in health education, the teacher, the health officer, the parent — all have to be awakened to the necessity for health education measures and instructed both in their aim and composition. To accomplish this we need all the help we can get.

We realize that what may work in one state does not necessarily work in another and that there are at times incompatibilities between local organizations and societies as there are between individuals. But we also realize that it is of great value to have the help of influential lay or private organizations in guiding and instructing public opinion.

If the state program is to be effectively carried on, there should be in the state department of education a director or supervisor of health education. For the qualifications of such a person it is not too much to ask that he (or she) should be thoroughly grounded in the fundamentals of health promotion and disease prevention and should have the positive health viewpoint. Also, he should be a trained teacher and should appreciate the relative importance of physical education and athletics.

It is obvious that if health education is to be put on a sound basis and incorporated as a major subject in the educational system, the teachers must be trained in the subject. In no other way can they hope to distinguish between true and false values. They will have to refer from time to time to authoritative sources for special guidance but unless they themselves have a fairly comprehensive and accurate idea of what it's all about, they cannot hope to do themselves nor their pupils justice. Teachers are fully alive to the opportunities that the classroom presents in the way of health teaching, and if *their* educational system does not give them the proper grounding in the fundamentals of health, then we need not be surprised if they at times lend an attentive ear to the health education systems of physical culturists or nutrition faddists.

We cannot consider here the detailed course of health education in Teacher Training institutions nor in the schools. It is evident that these must vary considerably with different types of school and with different grades. Those interested are referred to that monumental publication the Report of the Joint Committee of the American Medical Association and the National Education Association on health problems in education, also to the various published proceedings of health education conferences.

CONCLUSION.

In conclusion, we might remember that in all of this there is nothing in the subject matter essentially new. Our ancient beacon lights anatomy and physiology are still our guide and our strength. We have a broader appreciation of health than the old pathological concept, and it is this positive health viewpoint which we are placing in the schools. If we insist that those who instill this idea be properly trained to do so and that they adhere to demonstrable truths, nothing but good can come of it.

FUNCTIONAL NERVOUS DISORDERS IN INDUSTRIAL AND MERCANTILE ESTABLISHMENTS[1]

By H. W. Stevens, M.D., Health Department, Jordan Marsh Co., Boston, Mass.

INTRODUCTION.

IN one of our Army Hospitals in France a short time after the Armistice there was a certain recent recruit, drawn I believe from some remote district of Alabama. As a hospital-train patient he had come down the line with the usual medical field-card attached to his tunic so that the scarcely legible diagnosis could be seen by any of the medical personnel — and by the patient as well. The surgeon in charge of the ward on his next visit came upon this new darkey with his field-card which showed a diagnosis often made when the field-hospital surgeon didn't know what else to say about a man who had failed to make a good soldier — The diagnosis "Question of Mental Defect" — The ward-surgeon in his friendly manner said, "Well, Sam, what's the matter with you?" Sam was not a very sick looking darkey; nor did he feel very sick. He hadn't very much to complain of; some one else had done most of the complaining. The best he could do was the dubious response, "Well, Sar, I dun 'xactly know, but dey says Ah's got Mental Deefeat." His subsequent stay in hospital failed to reveal any more illuminating diagnosis than that he had already made for himself. But the fight in which this poor darkey had suffered defeat was of quite a different type from that of which the Armistice marked the triumphant end. The essential cause of that darkey's failure to weather the stresses of army life and to become an effectual supporter of our constitution is the substance of the theme I have undertaken to discuss.

I am aware of some of the obvious dangers that lurk in the popular discussion of Functional Nervous Disorders. A few weeks ago in Boston I met a physician who has medical supervision of the health of a big New England Industry of about 20,000 workers. I had just come from New York and I started to tell him with considerable enthusiasm of the full time Mental Hygiene Service in effect with the Metropolitan Life Insurance Company and also with the Macy Brothers Company, a large New York store. This physician is one of the most sound, practical, and business-like physicians that I know engaged in industrial work, but I soon saw that he was not much in sympathy with my enthusiasm. His response was to the effect, "We have heard already too much about this Mental Hygiene business. It's just encouraging people to be nervous. What we've got to do to cure these functional nervous people is to put the fear of God into them." That is the opinion of one very good man. It has merits, only it seems to me to lack discrimination.

Appendicitis has doubtless been more "popular" in recent years. Since the recognition of that disease there have been many people who thought that they had it when they did not. Yet there is no doubt that fewer people have died or suffered the severer consequences of the disease since its true nature was recognized. So, there are those who believe that in Functional Nervous Disorders — this great waste-basket of vague complaints and infirmities, that many practical physicians and surgeons discard as meaning nothing much at all — there is information worth the seeking for those who do not disdain a task of sorting and salvage.

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[1] Given before the New England Health Institute, Portland, Me., May 6, 1925.

NERVOUS SYSTEM.

The term "Nervous System" as commonly used, designates those portions of our body supposed to be concerned with the experiences of consciousness and with the control and coordination of bodily activities. The most minute and discriminating anatomical division, however, of the parts of that "system" fail to find any structural counterpart of the manifold phases of consciousness and activity — subjective, objective, purposeful, automatic, appropriate; or uncoordinated and inappropriate. It is just this lack of knowledge that necessitates the makeshift we employ when we use the term "Functional Nervous Disorders," which implies that there's nothing wrong only the Nervous System just doesn't work right.

SIGNIFICANCE OF "FUNCTIONAL."

The world has always been more interested — probably always will be more interested in performance than in minute structure. To the uninitiated all disorders are "functional." To most people an automobile is merely a *thing* that goes and transports us from place to place with more or less security and comfort and with more or less of a sort of auxiliary sense of self-respect or pride. To most persons the failure of a car to go is due to some mysterious perversity, that puts its failure to perform, at least for that person, in the class of "functional." It is only the person with a knowledge of the mechanical elements of an automobile that can take the failure of your car out of the "functional" class and make of it a concrete problem of structure or adjustment. The identical principle holds for a more simple or a more complex mechanism. A wheelbarrow is less liable than an automobile to a "functional" disorder not because it is mechanical but because its mechanics are more easily and generally understood. The term "Functional Nervous Disorder," then, is invented to designate disorders of thinking, or feeling or behavior for which the most skilled mechanician of the living human creature — anatomist, physiologist, psychologist have found no satisfactory explanation. That such disorders exist there is no doubt; that they are increasing in frequency there is cause to believe. We find them in government, we find them in business, in churches and homes. They may be called queerness, neurasthenia; they may be called cleverness, brilliancy, art or even extreme piety. They may be called dishonesty, trickery, treachery, politics or crime. Sometimes they appear desirable, even admirable; under other guises undesirable or reprehensible. I doubt if any one thing ever enjoyed or suffered such extremes of popular opinion, such a wide range of commendation or condemnation, as Functional Nervous Disorder.

Indeed if we limit strictly our ideas of orderly "nervous functions" to those that think, and feel, and perform in an entirely orderly, harmonious, appropriate and consistent manner in the midst of all the multiplicity of relations of modern communities we may discover that all of us are touched in spots with some "nervous disorder" of the functional variety. I believe I am not pessimistic in expressing this view. A decidedly optimistic present day philosopher Santayana says, "When we consider the situation of the human mind in nature, its limited plasticity and few channels of communication with the outer world, we need not wonder that we grope for light, or that we find incoherence and instability in human systems of ideas. The wonder rather is that we have done so well, that in the chaos of sensations and passions that fills the mind we have found any leisure for self-concentration and reflection and have succeeded in gathering even a light harvest of experience from our distracted labors. Our occasional madness is less wonderful than our occasional sanity."

INDUSTRY AND MERCHANDISING.

Before undertaking the discussion of "Functional nervous disorders" in relation to industrial and mercantile activities it may be well to survey the respective fields of industry and merchandising and to fix some of the landmarks, if there be any such, in those fields. It would require far more time than we want to spend here to make a comprehensive picture of production and merchandising and of the evolution of human relations represented by these two phases of our industrial system. We may, however, define some of the outstanding characteristics of those two processes or rather of those two phases of the same process. In perspective, industry as a whole may be regarded as the practical manifestation of the cooperative will and effort of numbers of individuals engaged in the creation of commodities from the raw material: and the similar cooperating will and activity engaged in the distribution of those commodities among the ultimate users.

Salesman and Craftsman.

There is one conspicuous difference between the work of production and that of merchandising. The workman who operates a lathe, the farmer who sows the seed, cares for the growing crops and reaps the harvest is much closer to physical material in his daily activities and is to a greater degree subject to the laws that govern material things than is the worker whose job is selling merchandise. In the daily transactions of the salesman's job there is the ever present temptation and the opportunity — even the encouragement — to make the worse appear the better reason. There is always the necessity for compromising with the unaccountable demands of the whimsical customer. The mechanic who runs his lathe or drill without oil, a workman who through carelessness or ignorance compromises with any of the fundamental laws of machinery or material is very quickly confronted by the judgment of his own incompetence in the form of ruined machinery, spoiled material or injury to his own person. Inherent in the salesman's job is the danger that the specious and the unstable may become a part of his daily practices. Inherent in the laborer's or the craftsman's job is a certain stabilizing influence, a kind of "straight and narrow way" laid down by uncompromising physical laws.

Types of Functional Nervous Disorder.

The particular types of Functional Nervous Disorder that concern industry are mainly of two sorts — first, the type that affects the will to create or work, which I suppose we must regard as the real motive power of industry; the second is that type that affects the cooperate aspect of industrial activities. The guises under which such disorders may masquerade seem almost infinite: but nearly all, at least as far as their special importance to industry is concerned, may be resolved into either one or the other, or a combination of both, which perhaps after all is but the equivalent of repeating the truism that creative effort in its cooperative expression is the very substance of industry.

"Disability" Type of Functional Nervous Disorder.

In explanation of what I mean by the first type of functional disorder, that is a disorder of the will to create, let me first discuss briefly the concept of "disability" — that impairment of the will to work when associated with some physical ailment or injury we call "physical disability." In other cases it may be due to some candidly recognized extraneous concern such as home affairs.

In still other cases there may be no concrete factor to be found, either bodily physical condition or circumstances, to explain "disability." In these cases where disability is manifest in the guise of symptoms and complaints for which no basis can be found we have come to attribute disability to "Functional Nervous Disorder." People in this group suffer tortures of mind and I have no doubt even of body from vague feelings that tell no clear story of disease to a trained and most observing physician yet which have for the sufferer a significance that is ominous. These people tell much about "dullness," and "fullness," and "tightness," and "heaviness," and "drawing," and "sinking," and "all-gone feeling." I have tried my best to make a picture of that type of suffering but the best I can make of it is a sort of nameless fear and dread. Apparently the feelings that are common and inevitable in all our bodies have in these poor people become distorted and exaggerated to the degree of threatening one of two things — physical incapacity or death. They tell you in a perfectly hopeless manner that their nerves are "shattered" or "completely gone" and they passively wait for that distant and uncertain time when they shall get back their "strength" or get "built up again."

Maladjustment Type of Functional Nervous Disorder.

The representative of the second type — the type that interferes with the cooperative character of all enterprise that can be classed with industry — is the person who cannot get along with other people; the person with some peculiar twist in his make-up that distorts or destroys the attitude of comradeship that normally springs up wherever two human creatures find themselves associated in almost any set of circumstances. The characteristic type of this class is the person who is incapable of the team work which is essential to any well ordered industrial or mercantile undertaking. He is always looking to see that he gets what is coming to him, that no one puts anything over him; he misses utterly the idea expressed by Theodore Parker who said, "The essence of Democracy is not" 'I'm as good as you are', but rather 'You are as good as I am.'"

Personal History, Salesgirl. — Within the past few months I have seen from time to time a girl of about twenty years who has been absent from her work since about the first of the year. She is a well-developed, rather pretty girl, apparently well poised, not at all nervous in appearance. But she tells at length and with considerable detail of her present troubles and of a period of practical helplessness when a child from what may have been "chorea": and of an almost miraculous cure at the hands of an osteopathic physician. The mother of the girl, too, tells with great detail the story of her own nervous breakdown as well as that of her daughter. The girl's chief complaint now is a feeling of "dullness" in the head which she cautiously admits is improving very gradually but she really hasn't any idea when she'll be well enough to work. Incidentally she is now under the care of the same physician who effected the cure of her childhood illness. Another fact of interest is that at her work in the store she is, or was, under the direction of a young man, whom she considers distinctly her inferior intellectually and in breeding and that annoyance figures in her story of her affliction. Weeks ago I had this girl examined by one of our best Psychiatrists for evidence of definite nervous or mental disorder. He found none but added in his report that she might be one of those superior individuals made of a better grade of clay than the most of us, who will always find difficulties in mingling with the common earth of industrial and mercantile life. Meanwhile, she still goes on to improve very gradually and cautiously while I have the problem of what to do about a disabled absentee who is the picture of health and complacency.

Personal History, Driver. — Several years ago I had as a patient a truck driver, 32 years old, whose right ankle was injured as a result of the bursting of a tire. The injury was apparently only a bruise. After twelve days however, because pain persisted, special examination was made. The X-rays showed a crack in one of the bones with no displacement of the parts. The man was cared for by a casualty insurance company about five weeks. At the end of that time he was told his ankle was well and that he might go back to work.

After about a month back on his job he began to complain of weakness of the ankle felt while driving. He seemed to want a change of occupation although he wasn't able to make clear just what he wanted. There was no obvious reason why his ankle should be weak and no immediate move was made to change his job. One thought, I presume, that influenced me in my attitude was the fact that very frequently physical complaints are made the excuse for a request for change of job. As time passed the man became more disgruntled and began to develop a complex set of mental reactions. He was inclined to make capital of the fact that his injury was at first considered less serious than it was in fact, although the treatment given at first was not essentially different from the treatment appropriate to the actual injury. He suggested that he might kill himself or some one else if kept on the truck and threw out the disconcerting threat that he would not feel responsible for any accident that might happen to his truck while driving. When he was finally put on another job — the most appropriate that could be found — he protested that this was as bad as the first and besides the pay was $8.00 less on the new job, although in such cases any difference in pay is always made up and this man actually received the same amount of money on the new job.

First and last this man's problem occupied the time of numerous officials of the store and insurance company. It is possible that the number of persons concerned in trying to make an adjustment may have created another instance of too many cooks. The fact remains that a physical defect, which by all reasonable standards should have completely recovered within two or three months, became complicated by certain mental factors chief among which was a feeling that he was the victim of some unjust treatment in the matter of jobs and pay. These mental factors which prolonged the period of partial disability to eight or nine months at least in the end came to overshadow almost completely the original physical impairment. The last I know of this man was soon after he left the store, because of dissatisfaction, he was working as a chauffeur for a private family.

Within a few weeks there have been in our Health Department two young men suffering from very peculiar complaints. One had a pain in the chest for which he could think of no explanation except "Perhaps my mother is sick." The other had nausea and vomiting — he thought because his wife was pregnant.

Functional Nervous Disorder in Industry.

Any industry or store having a health service could multiply cases of actual disability with no discoverable physical defect: or of physical defect with associated disability exaggerated beyond all expectations based upon knowledge of physical defects alone. Also many an employment manager could supply a long list of problems in work adjustment or in discipline all of which show some peculiar twist of personality as the real cause of failure as human units in industry.

Statistical Discussion.

I am going to give you now just a few figures to suggest the prevalence of these disorders which I have been trying to picture for you. As I know of no other source that provides the particular figures I want for my purpose I shall give you some figures drawn from a study which I, myself, have made.

In a group of store workers numbering about 4,000, in a six months period from October to February, the diagnosis of Functional Nervous Disorder was made 506 times. During the same period these disorders stand fourth in order of frequency among the complaints treated in the store health department. Of the total 4,000 workers 405 persons were affected in the six months period. Thus about 10% of all workers manifested disability from such complaints. During the same period 1,546 days of working time were lost by 123 individuals from this cause. This comprises something over 9% of the total time lost through illness during this period.

We have no satisfactory means of estimating impairment of efficiency among those who suffered from nervous complaints and yet stayed on the job; and furthermore we can only guess at the loss from this cause complicating convalescence and prolonging absence from gross disease and injury. Not to be forgotten also are the drain upon potential human efficiency due to mental inferiority and lack of moral stamina of workers' handicaps which seldom assume the form of complaints in a medical sense, and only occasionally come to the attention of the physician.

Finally an appraisal of the industrial value of those qualities of personality that make the difference between porter and president is largely a matter for speculation.

Discussion of Remedies.

I am aware that I am expected to face sooner or later the question "What can be done about Functional Nervous Disorder?" and I must admit at the start that we are far from any standard method or practice for universal application. But I suspect I may as well attempt that part of the task sooner or later.

Ignoring Facts not a Remedy.

In the first place I believe that saying "There's no such thing" or that Functional Nervous Disorder is merely the creation of over-zealous nerve specialists, does not dispose of Functional Nervous Disorder in industry or anywhere else. Any thoughtful observer has but to read current events and to look about him to see the evidence of disordered thinking and feelings manifested in the scrambled affairs of men (and women) in home, city, state and nation entirely outside as well as within the field of industry: Look into any court of domestic relations or the adventures of the 18th amendment: Review the Sinclair Oil episode with all its national and international complications: Consider the tragic state of Russia's economic affairs. In short consider any controversy in which human ideas of Right and Wrong are the issue.

Literature is full of dissertations upon this very theme containing at once a suggestion of the difficulty and the remedy.

Professor Carver in his "Religion Worth Having" says that people seem to think that vision or belief in anything regardless of its validity is a guarantee of the future for nations as well as individuals, and they quote "where there is no vision the people perish." He goes on to remark "But also when there *is* a vision the people may perish — it is not recorded whether they perish more certainly in the one case than the other." Vision may be a mirage; belief, a delusion. The character of the vision and the belief is the factor which determines whether a people perish or survive.

Disordered thinking and feelings were the source of life's tragedies and failures long before the day of nerve specialists. It is still with us whether you say or do specifically little or much about it. Functional Nervous Disorders dissipate first or last a vast deal of life's potential energy without as well as within industrial occupations.

Fear not a Remedy.

Again, I certainly do not believe the solution is in ways and means of putting "The Fear of God" into people — at least not in the common implication of that expression. It may work in a few cases, notably where malingering is the secret of the difficulty and in a few cases when it arouses a counter fighting mood. But generally people suffering from nerves are already too much the victims of fear: in fact their entire trouble is probably due to some haunting fear of one sort or another. One of the early records of failure to be productive resulting from fear is contained in the parable of the talents. "I knew that thou art a hard master, reaping where thou hadst not sown and gathering where thou hadst not strewn: — And I was afraid and went and hid thy talent in the earth." With few exceptions I have not seen threats or unsympathetic severity accomplish any result except to make the problem of nerves more vexing.

Attacking the Problem.

I do believe that something can be done and that the approach to that something is in attacking the source of the difficulty by the most direct possible approach.

ESSENTIAL CHARACTERISTICS OF FUNCTIONAL NERVOUS DISORDER.

The outstanding features of Functional Nervous Disorder seem to arise from either an exaggerated morbid interpretation of bodily sensations or an exaggerated or morbid interpretation of circumstances and relations with other people. The unfortunate individual may be one who has lived a life of dodging obstacles; who has never had a vigorous red-blooded view of life. Always there appears to be some important fact or circumstance not squarely faced. The painful efforts of the individual to adjust the rest of his life to that important failure completes the unfortunate story of disordered nerves. The effects of disordered nerves may spread from one person to others; from the man of the house whose bad temper affects in turn the wife, children, the maid and even the harmless necessary cat that lies under the kitchen stove: or from the manager all down through an organization. The sufferer if he has not the stamina to rise above and master his difficulty by sheer intellect and will is in a very true sense the victim of "Mental Defeat." The picture of the misguided pilgrim who turned aside from the Hill path and whose journey came to an unhappy end in the wide field full of dark mountains is not too tragic for many a sufferer from disordered nerves.

The expressions of experience from widely scattered sources seem to agree that there is peril in any course except that which meets and deals with actual conditions and facts in an uncompromising, decisive manner. Incidentally we gather that those who fail to follow such a course are more numerous than those who do. Compromise is often expedient, but compromise always means deferring the settlement of an issue to a time more or less remote from the present. Compromise is dangerous to integrity of mind. Evidently there is something in the slogan of Mental Hygiene that sound mental health means the "*ability to face actuality without compromise.*"

Practical Measures.

When we come to practical measures for any specific problem several view points are possible. Whenever a bridge fails we may blame it on the load or on the bridge. When a particular set of nerves fails we may say the strain was too great: or the nerves were not equal to the strain. If it seems that the failure is due to too great strain we may say "Fatigue"; if to nervous stamina not equal to what we consider average we say "Nerves." The viewpoint, however, does not change the nature of the trouble; it only helps an onlooker to decide what's best to do about it.

Attention to the Individual.

If it appears that the trouble lies in the individual it may be possible to help him fight his own battle by sympathetic insight into the nature of his difficulty (and sympathy that really helps must be intellectual as well as emotional). Some people have grown up from childhood as mollycoddles and spoiled children. Some have underlying physical impairments and defects aggravating their nervous symptoms. Eyes, or ears, or noses, or gastro-intestinal functions may need attention. Some enthusiasts hope to find the source of Functional Nervous Disease of glands of Internal Secretion. But that is something about which much is talked and little known. To help the individual whose sphere of thought, feeling and activity is limited is relatively easy. To help the person of executive or administrative calibre is more difficult. Often the only remedy for Nervous Disorders manifesting itself in unsound business policy is to wait for time to pronounce judgment in the practical fortune or success of the policy. In this relation it is interesting to note the headlines in a current newspaper, "Soviet acknowledges its failure in the field of industry." But always it is true that there are few people truly qualified to be the trustees of the inner secrets of other individuals.

Personal History. — Some months ago our visiting nurse sent in to see me a girl who was absent from work, and whom she thought should be sent to our Rest House. The girl was pale and nervous and broken-spirited and certainly seemed in need of attention. There was nothing obviously wrong in her physical condition and I might easily have approved her going to the Rest House on grounds of Fatigue or Nerves. But for some cause I was moved to look further and after some questioning she proceeded to tell the whole story. She had been a member of a course of training for executives. She had hoped for months to fill a certain position after the completion of the course but had been assigned to quite different work which was distasteful to her. She was discouraged and had quit. I am not sure how much influence my suggestion had. It is a fact, however, that something happened to this girl. She was intelligent, a college graduate; with pride and considerable moral stamina and before she left my office she declared that she saw clearly just what the trouble was: she wasn't sick; she didn't need any Rest House; she was going to come back and tackle her job and see the thing through and she did.

Personal History. — A somewhat different type is a girl I saw only a few days ago. Numerous times before I had seen her and gone over pretty much the same story. On this particular day she rambled on as follows. "It's still nerves — every time I eat I feel so weak and trembly, and whether I eat or not I feel so — I work hard and try to forget it and I haven't a pain or an ache and I can sleep all right. On the cars I feel weak and I feel as though I'd like to ask some one for a seat and after I get out I can walk all right — but I'm scared to go anywhere alone: it's those funny feelings I get." A very strange fact about this girl is that she loses little time and does her work well. Her solution of the problem of "nerves" is this — in her own words, "Mine doesn't show: mine works inside." Unfortunately too few cases of nerves can be trained to inside work.

ATTENTION TO ENVIRONMENT.

Often the sufferer from a nervous disorder is manifestly beaten by an environment that is too much for him. He may have struggled to the limit of his endurance and met defeat. Now I do not regard it necessarily as a deficiency that a man or woman cannot stand the pace of today's industrial life. Possibly the trouble may be a whole race of men suffering from Nervous Disorder in the form of a frantic delusion that man's sole mission is to serve the cause of industry rather than industry to serve man. At all events sometimes the only solution seems to be the finding for the individual of a new manner of life that has less of complexity, less of conflict than the one in which his trouble has arisen.

Whenever viewpoint assigns the chief responsibility to circumstances, the problem seems simpler. At least it seems more concrete and tangible. The work of employment manager, personnel man and physician in industry is a daily round of adjustments and readjustments, the removal of unreasonable annoyance of work or work circumstances, the untangling of impossible personnel relations.

In the extreme case the individual may be advised and assisted to find occupation in some other environment.

Personal History. — I recall one instance of this sort several years ago — a girl of about twenty years, intellectually, perhaps, a little below normal but not conspicuously deficient.

Emotionally, however, this girl was utterly unable to cope with the stresses of store life. Repeatedly she was found in the Health Department, weeping copiously over some trivial jolt incident to her job that most persons would have passed over as all in the day's work. This girl was sent to one of our Psychiatrists: then the situation was discussed with the Employment Manager, the mother and the girl herself. It was found that arrangements could be made for the girl to work as a nurse maid to care for the children of a family in the country. This plan seemed nearly ideal. I saw her some weeks afterward, she had gained about ten pounds, had a rosy healthy color — a very different creature — and I believe this was the first time I ever saw her when she was not in tears.

There is one suggestion that seems to me a possible avenue of promise in the distinction I made earlier between the work of the salesman and that of the craftsman and laborer. I believe that many a neurotic salesman or woman would find more appropriate and satisfying occupation in a machine shop, on a farm, or in a home where the personal relations would be less complex and the immediate environment of work would be simpler and nearer to the fundamentals: and for the same identical reason that a vacation in the mountains or at the seashore quiets jangled nerves and clears confused brains. It is a boon to highway traffic to have our bridges marked "load not to exceed 10 tons" or "25 tons" or "2 tons" or "cross at your own risk." A similar grading of nervous capacity as a basis for grading loads would seem a greater boon in industry and save many "Nervous Breakdowns" and "Mental Defeats."

COMPROMISE.

With a mind to a splendid, idealistic Mental Hygiene creed: as also a sympathetic mind toward the difficulties of industrial management, I must say a few words about "Compromise." A rigid adherence to the creed that Mental Health means "facing actuality without compromise" would seem to leave little place in our scheme of things for concession and compromise and prescribe a rather hard boiled business administrator. Compromise is not ideal and as a plan of individual conduct it leads at best to only commonplace achievement, and at worst to most distressing complications. It does, however, seem in practice that "facing actuality" sometimes consists in candidly recognizing that a particular actuality is too great to be faced by a particular individual.

If compromise has a worthy place anywhere in human affairs I would certainly grant it to the business executive or administrator for his task it is to modify and adjust and mould conflicting ideas and feelings and interests of a corps of men and women into a productive organization. Also while I cannot speak with authority for organized Mental Hygiene I am rather inclined to believe that its strictest exponents, confronted by some of the problems of a large business, would crave the privilege of compromising — just a little — with their uncompromising creed; and I believe grant the privilege of discerning sympathetic compromise as the only human means through which the business administrator can effect a happy adjustment of jobs to workers according to their several capacities.

PRENATAL LIFE.

By John P. Sutherland, M.D., Sc.D., Boston, Mass.

"POORLY nourished cows often give birth to weak, puny calves which are hard to raise. The feeding of the calf, therefore, begins before it is born. The food elements necessary for the development of the calf are taken into the stomach of the cow, digested, assimilated, and transmitted to the calf through the umbilical cord, the connection between the mother and the calf. It is evident that if the cow does not receive food enough to keep herself in thrifty condition and at the same time develop her calf, the calf may suffer. In endeavoring to raise good, thrifty calves many dairymen handicap themselves at the start by not properly feeding the pregnant cow."

Such is the opening paragraph of the U. S. Department of Agriculture Farmer's Bulletin No. 1336, which gives instruction in the "Feeding and Management of Dairy Calves and Young Dairy Stock." Special comment is unnecessary although the paragraph contains a lesson of vital importance to humanity.

In the Journal of the American Institute of Homoeopathy for September 1923, on p. 266 may be found the following significant statistics:

"The annual number of uterogestations in the United States approximates 2,650,000; from this number 15,000 maternal lives are lost, and additional thousands left with impaired health. 150,000 mothers give birth to full term dead babies and during the first four weeks of infant life another 115,000 die. How are we going to lessen this unnecessarily high mortality rate? First, by stimulating the enthusiasm of physicians for increased prenatal work."

Within recent years the vital importance of prenatal life has been appreciated by a portion of the medical profession and an encouraging proportion of the laity, and clinics for the examination and instruction of expectant mothers have been instituted in all up-to-date hospitals, dispensaries and maternities, with results which quite justify their existence.

It is being realized in these days of eugenics that a woman is not necessarily fit, physically and otherwise, to be a mother, to bring healthy, happy children into the world, simply because she is a woman. Something very much more is needed.

Physically the most important period of the individual life is that which is spent *in utero*, for during that period all the foundations are laid, the tissues and organs are formed and cellular activity is at its highest. Not only the skeleton with its connective tissues, muscles and the enveloping skin, but the heart, lungs, liver, spleen, kidneys, and the wonderful organs of sense; the eyes with the marvelous retina; the ear with its astonishing series of tympanic membrane, ossicles, and cochlea; the little known but most interesting endocrine glands; the blood; all these wonders and more, are perfectly outlined and fashioned during the nine months prior to birth. A veritable miracle and beyond comprehension!

Let it be remembered that the beginning of the individual's physical organism is just a minute mass of protoplasm approximately .2 millimetre or 1/125 of an inch in diameter. This potentially *is* the individual. Everything that comes later is simply the result of the changes which take place in that single cell; viz. cell multiplication, cell specializations and combinations, with their secretions and excretions; all contributing step by step in orderly sequence, till the perfectly formed creature is made. And all these different steps are absolutely dependent upon nutrition. The original cell, and all succeeding ones, must be supplied with the suitable variety and quantity of nourishment (food) in order to do its work satisfactorily. The cells are tissue and organ-builders and must be supplied with good and proper material in order to do good work. An architect cannot build a house if he has only men to work with: each man must have just exactly the right material from which to make the chimney, the walls, floors, windows, doors, etc., which are essential to a well constructed, useful house. Naturally it is so with the tissue and organ-builders of the body. They individually must have just exactly the right kind of material (food) from which to construct the body as a whole.

Nature has made wonderful provision for all this. In the human family it is intended that the maternal structures shall directly, without the intervention of any special apparatus, furnish nourishment to the primitive single-celled organism which is the potential child, as the child is the potential man; but very early in uterine life a peculiar mechanism is formed through which there passes from the maternal blood-stream to the embryonic or foetal blood-stream those nutrient materials which form the food of the developing child. This mechanism is called the placenta and is developed partly by the mater and partly by her offspring. This placenta acts to the child in the double capacity of pulmonary and intestinal mucous membranes, being chiefly absorptive though partly eliminative in function. That is, food is taken into the mother's stomach, is digested and absorbed into her own blood-stream, which carries oxygen and the food material modified by her own digestion to the placenta, from which the foetus absorbs the materials to be used in building its own tissues and organs, or body. It should be distinctly understood that the mother does not give even a drop of her own blood to the child. The latter forms all its own blood (leucocytes, discs, and all) from the food material supplied through the placenta.

But the mother can give only what she possesses. She must have in order to give, and she must acquire in order to have or possess. Therefore in her blood-stream must be found not only the suitable amount and proportion of lime, iron, potassium, sodium, phosphorus, nitrogen, and the other elements needed to keep her own bodily tissues and functions in good condition, but an additional supply of all these materials, properly balanced, from which the foetus may draw its needed nutriment. If there be too much nitrogen or carbon or other chemical element in her own blood there is trouble as a result in her own and in the foetal organism. Or if there be an insufficient amount of iron or lime or other needed material, there is a proportionate deficiency of these materials in both mater and child. It should be intelligently realized that the health and well-being of both mother and child absolutely depend upon the rational and balanced diet of the mother; and it should never be forgotten that neither the mother nor the child can make iron from lime, or nitrogen from oxygen or other chemical element; that these materials and their combinations must be included in the food, otherwise there is a mischievous deficiency.

Unfortunately just what a rational and well balanced ration is can be discussed indefinitely, there are so many opinions on the subject. A helpful lesson, however, may be drawn from nature.

In the vegetable kingdom the seed has a "germ" or germinal area plus enough food material to keep the germ active and growing until structures have developed which enable the plant to draw its sustenance from mother earth.

Among birds (take the chick for example) the egg contains in addition to the small germinal area a relatively large amount of food, well balanced, in the yolk and white, and enough oxygen in the air chamber, so that by the time all the food is consumed the chick is formed and active and ready for its début.

Among mammalia, however, the offspring is dependent wholly upon the mater for food and protection during the entire intrauterine period of existence, "pregnancy" being universal among the mammalia only.

The non-human mammalia live, governed by instinct, a simple life on a diet of limited variety. The human species as a rule lives on a mixed and artificial diet, being guided by whims, fancies, traditions, customs, fads and theories, with sometimes a little intelligent experience which stands for knowledge.

The sub-human mammalia go through their pregnancies with apparent indifference, ease and freedom from the long list of sufferings and dangers so common in the human family.

The diet of the animal is as nature furnishes it, whereas the diet of the human family during pregnancy, and at other times, is as unnatural as unintelligent art can make it. Scarcely an article of man's food is as nature produces it. Practically everything is modified by milling, preparation, cooking, preservation, etc.; by the abstraction or addition of something, all of which manipulations assist in producing results as follows:

I. Pregnancy, a perfectly natural physiological condition, is looked upon by civilized people as a period of suffering and danger.

II. The birth of a child is often a difficult task accompanied by much suffering and real danger to life of both mother and child.

III. Too many babies are puny and feeble, and lack the vigor and sturdiness that should mark the beginning of life.

The fact should be emphasized, and everybody should understand, that the mother's chief task during pregnancy is to furnish a suitable quantity and variety of food to the developing child within her; that the mother simply has to feed the child and therefore must pay particular attention to her own diet; that no organic connection exists between mater and child except through the placenta; that the physiological connection is in a word dietetic. The psychology of pregnancy is not under consideration.

One would not expect a fine woolen mill equipped with the best machinery and amply supplied with workers to produce first class woolen goods if only shoddy or cotton yarn were supplied to the workers. "Impossible," every one would say. But women expect to bear first class healthy children when the tissue-builders of these children are given shoddy material (imperfectly balanced foods) to work with. Sentiment and psychology aside, the building of healthy bodies during prenatal life is simply a question of feeding — correct feeding for mothers; and nature has furnished an ample variety of well balanced foods for the purpose.

The needed foods may be found in the whole-grain meals and flours; in "cereals" made without demineralizing the grains; in the very large variety of vegetables nature has so bountifully provided for human use: (these vegetables should not be demineralized by boiling in a large quantity of water), in the wonderful variety of fruits, berries, melons, etc. accessible throughout the year; in nuts, and in milk and eggs.

In 1885 a book was written with the intention of serving as a guide to the rational and intelligent care of women during pregnancy. The book carried the unique title of "Tokology." Among many excellent ideas advanced by its author (Dr. Alice B. Stockham) was the suggestion that pregnant women got on much more comfortably during their pregnancies and had far easier deliveries on a vegetarian than on the ordinary mixed diet. Moreover the babies seemed to thrive most satisfactorily during prenatal and postnatal life. There is considerable confirmatory testimony to this idea but statistics on any large scale are not available and the subject must be left *sub judice*.

A diet that will furnish all the needed carbohydrates, proteins, mineral salts, vitamins and fats may be obtained from seed wheat, seed rye, honest cracked and ground wheat, rye, corn, oats and barley; brown or natural rice, shredded wheat, and triscuit, "Ry-Krisp," breads made from the unscreened ground grains only (whole wheat flour); the wide variety of vegetables offered by nature according to the season of the year; the ripe fruits, berries and melons, and nuts: with the addition of milk and eggs.

Dr. Percy R. Howe in 1922, in a paper on "Decalcification of Teeth and Bones, and Regeneration of Bone through Diet," p. 9 of reprint, refers to some of his experiments on pregnant guinea pigs, stating that the use of a scorbutic diet, *i.e.*, one containing an excess of carbohydrates, "resulted, in a number of cases, in the absence of eyes in the young. I have had several animals born with only one eye, or one good eye, and the other sightless or imperfectly formed. Many are born with spots on the outer coating of the eye, which clear up under proper feeding."

"In animals on the scorbutic diet, eye trouble follows even to the point of pus welling out over the eye during eating. Feeding orange juice is followed by complete clearing up of the trouble."

This quotation is presented simply because it is illustrative and suggestive of the troubles that may be produced in the offspring by a wrong diet on the part of the pregnant woman. All the possibilities are by no means included in the brief quotation from Dr. Howe. It surely would seem to be well worth while for the medical profession and the laity intelligently to consider and adequately study the all important subject of *prenatal feeding.*

SKIN INFECTIONS IN PUBLIC SCHOOLS.

By Margaret G. Reilly, R.N., Teaching Nurse in Charge of Skin Dept.,
Massachusetts General Hospital.

ALL Public Health Nurses should have some knowledge of the common skin diseases, and since many are working in outside districts and rural communities where the doctor is rarely seen, the nurse, by her ability to recognize the common contagious skin disease, may be able to prevent the spread of disease in a school house or a community.

After a diagnosis has been made, the treatment should be explained to patients or families and careful attention should be paid to details. The technique counts in the care of skin diseases for it is impossible merely to slap on treatment and expect results. See the patient not as an individual patient but as a part of a family group or classroom — that may also need to be examined and treated.

A few practical hints about the diagnosis and treatment of the common skin diseases may be of benefit to nurses doing Public Health Work. I am certain there isn't a nurse living who hasn't seen a case of pediculosis capitis, and who hasn't worked hours over heads trying to free them of nits. Formerly treatments given in this disease had to be repeated many times before a cure could be obtained, but with our present methods one thorough treatment is always sufficient.

Pediculosis Capitis.

Symptoms.

Itching of head, often with scratched, infected areas on scalp and face and enlarged lymph glands behind ears or in the upper part of the neck. Always suspect pediculosis capitis when one finds glands or impetigo contagiosa.

Diagnosis.

Eggs (nits) found adherent to hairs can be moved longitudinally along hair and removed from their end but cannot be brushed off as can dandruff. Adult forms (live lice) are sometimes difficult to find. They live on scalp laying eggs near the base of the hair. The distance of the eggs from the scalp, due to growth of the hair, gives a rough estimate of the duration of the infection.

Glands rarely have to be incised and they disappear after the head has been cleaned up. Before treating impetigo remove the cause of the disease, namely, the lice.

Treatment.

Carbolic Solution 1-40.

Equipment.

One rubber apron for patient's shoulders.
One 2-quart pitcher.
One agate basin.
One towel for cap.
One small towel to cover eyes.

Pour into pitcher 1 pint 1-20 solution carbolic acid. Add 1 pint of hot water. Place rubber around patient's shoulders. Protect patient's eyes by using small towel. Place agate basin under patient's head in such a way that solution can run into it. Pour solution over hair. Turn solution back from basin into pitcher. The solution must be poured again over hair until the hair is thoroughly saturated (about three times). Allow the hair to drip a few seconds before tying up in towel. The hair should remain tied up for one hour.

Treatment of Nits.

Derbac Soap Derbac Comb	Creal Soap Company, New York.

Shampoo the hair well with the soap and very hot water. When the hair is covered with a good, thick lather, tie up the hair and let it remain for five minutes. Do not rinse the hair too thoroughly; the soap keeps the hair soft and moist and makes the combing easier.

Shake out the hair and strand by strand, comb the hair holding the hair up from the scalp, and using a downward motion.

The hair can be completely rid of nits and lice in one sitting if the treatment is done thoroughly. The secret of this treatment is to comb the hair while it is moist. Once it dries the nits are not separated from the hairs very readily.

Precautions.

Examine the whole family and treat at the same time if nits are present.

Remove all hat linings and boil or press with a hot iron. Soak the comb and brush in hot ammonia water.

To remove nits from Derbac comb soak in solution of soda bicarbonate. Comb can be used many times before rewiring. (Nurses can rewire comb with wire obtained from any electrician's shop.)

It is well to remember that unhealthy children furnish good breeding ground for pediculosis, and once the heads are rid of this infection the general condition of the children improves.

Two other types of louse infection caused by distinct species are pediculosis corporis and pediculosis pubis.

PEDICULOSIS CORPORIS (BODY LICE).

Symptoms.

Itching on body, minute hæmorrhagic spots on skin, long scratch marks over body especially noticeable on shoulders. Eggs usually deposited in clothing but may be attached to fine body hairs.

Diagnosis.

Types of bites on skin are characteristic. Lice can usually be found adherent to body hairs and in seams of clothing.

Treatment.

Hot soap and water bath. Rub thoroughly into body the following ointment:

Acid. salicylic.	
Sulphur. praecip. aa	2.
Petrolati	32.

Let this remain over night and take another hot scrub in the morning. Boil all underclothing and bed clothing. Everything that cannot be boiled press with a hot iron, paying especial attention to seams of clothing. Shaving of the entire body hair is always the surest treatment.

PEDICULOSIS PUBIS.

Symptoms.

Itching above pubes and genitalia.

Diagnosis.

Nits may be found on the pubic and axillary hair and often on eyelashes.

Treatment.

Shaving is simplest and quickest treatment. Smear eyelashes with boric ointment and nits will be softened and readily removed.

SCABIES.

Commonly called "The Seven Years Itch" is caused by an animal parasite that burrows into the horny layers of the skin. It is a contagious disease and is contracted by sleeping with an infected person or in a bed that has been used by an infected person. Blankets used by a scabietic person are a source of infection. The incubation period is from one to three months.

Symptoms.

(*a*) Intense itching at night.

(*b*) Other members of family itching.

Diagnosis.

(*a*) Characteristic burrow between fingers and on front of wrists.

(*b*) Other typical lesions on elbows, around axillæ, buttocks, over abdomen, around nipples (female) and on penis (male).

Treatment.

"Danish Ointment." One night treatment. "Danish Ointment" can be secured at the Massachusetts General Hospital. Treatment as follows:

All the members of the family who itch or who have slept with a patient who itches must be treated at the same time, if the family wish to secure a permanent cure and prevent reinfections. This disease is very contagious.

Treat as follows:

"All take a good hot bath, using ivory soap and scrubbing the body carefully all over with a small brush.

After the bath, rub thoroughly into the body, from chin to toes back and front, the ointment given to you by the doctor. Do not rub ointment on face or scalp.

Do this treatment only one night. The following morning put on freshly pressed underclothing, and bed clothing. Take all your soiled clothes, including night clothes, underclothing, pillow cases and towels and put them into a boiler or large pan on the stove and cook 20 minutes. Everything that cannot be boiled press twice with a hot iron.

Return to the hospital, doctor, or nurse in one week to see if you are cured."

The ointment is very strong and patient may itch as result of treatment — if he does, give following bath:

Corn Starch Bath.

Use sufficient cold water to dissolve ½ pound of corn starch. To this solution add one quart of boiling water. Cook on the stove until it forms a jelly. Pour this mixture into ½ tub of warm water. This bath is given to relieve itching and irritation.

If patient continues to itch two weeks after treatment examine, and, if there are still signs of activity, treat again.

Children should not be allowed to go to school until one week has elapsed after treatment.

IMPETIGO CONTAGIOSA.

Impetigo contagiosa is usually a staphylococcus or a streptococcus infection.

Earliest symptom is a blister or vesicle, serum discharge and forms a gummy crust. It is spread by scratching.

Complications: Pediculosis and glands.

Equipment: Soap in a tube or liquid soap. Toothpicks covered with cotton. Paper towels or old piece of cloth that can be burned.

Treatment: Remove cause, pediculosis, then treat. Pour a small amount of soap on a piece of cotton or gauze, wash thoroughly using a new piece of cotton for each separate lesion. Remove all crusts. Dry carefully with a paper towel. Cover a toothpick with cotton, dip into ointment and butter each spot well. Use a new toothpick for each lesion.

Precautions: Everything that has come in contact with impetiginous lesions should be boiled — sheets, pillow cases, towels, etc. This treatment should be done twice a day.

This disease is highly contagious and children should not be permitted to attend school.

RINGWORM.

Ringworm is a fungus infection, may attack scalp, face, body, and finger nails.

On the body it presents a reddish-pink slightly elevated and somewhat scaly appearance, assumes a ring-like aspect and tends to clear up in the center.

Diagnosis.

Clinical appearance and microscopic examination.

Treatment.

Daily soap and water scrub as in impetigo. Application of ointment.

Precautions.

Sterilize or boil clothing and towels.

TINEA CAPITIS.

Tinea capitis (Ringworm of scalp) is much more difficult to cure since it is the intradermic portions of the hairs that are affected.

Diagnosis.

(*a*) Incomplete loss of hair.
(*b*) Scaliness.
(*c*) Brittle or broken hairs.

Scalp presents a moth-eaten appearance. Microscopic examination is always advised.

Treatment.

X-ray epilation for children over six. (Children under six will not keep still enough for this treatment.)

Care of the scalp before X-ray treatment: Clip hair close to the scalp. No treatment for ten days before X-ray. Children should always wear a tight fitting cap before and after treatment, these to be changed daily and boiled.

This is the quickest treatment and children are usually ready to return to school in six weeks. There is very little danger from this treatment when it is in the hands of an expert dermatologist.

Local treatments of the scalp take a great deal longer and frequent microscopic examination should be made. Hair should be kept clipped. Scalp should be scrubbed daily with soap and water. Manual epilation can be done with an epilating forcep. Pick out daily all hairs from infected areas; this does hasten recovery. Caps should be worn all the time, changed daily and boiled.

Ointments and sometimes solutions are used for local application. These are applied only on infected areas.

Precautions.

Change all linings of hats; either boil or press. Examine all children in family and neighborhood. Cats and dogs may be source of infection and they too should be examined carefully.

One of the worst epidemics I have ever seen was caused by a mother cat and her six newborn kittens. All had the disease and were given away to six different families. Every child in each of these six different families had the disease when examined, also a very valuable bull dog. Strange to relate, the dog responded very well to treatment and was well before the children. No adult in this group had the disease. The cat and kittens were sent to Animal Rescue League.

ACNE.

Acne is an inflammatory disease of the face and upper trunk, usually starting at puberty. It attacks the sebaceous glands. If this disease is allowed to go untreated over an extended period it becomes chronic and very unsightly and does not respond to simple methods of treatment. Nurses should urge mothers to start immediate treatment, both local and systemic at the first appearance of the infection.

Diagnosis.

Blackheads (Comedones).
Papules (hard red pimples).
Pustules.

Complications.

Oily skins, dandruff.

Treatment — Local and Systemic.

Local: To remove blackheads soften each one with carbona and press out with a blackhead remover. (These can be obtained in any drug store). Scrub the face carefully and thoroughly every night with Ivory Soap and hot water. Shampoo the hair frequently with same soap. Any washes and ointments can be obtained from Skin Specialist.

Systemic: No fried foods; no highly seasoned, spicy foods; no chocolate; plenty of water; nothing between meals; plenty of exercise.

Ultra-violet therapy is used with remarkable results in this disease. Stubborn cases respond to X-ray treatment when nothing else seems to work.

DRY SKINS.

Nurses may help mothers by explaining that children with dry skin need to use not an ordinary soap, but a superfatted soap. In extremely cold weather cold cream should be applied to hands and face before putting children or babies out of doors.

BROMIDROSIS OF FEET (BAD ODOR).

Many boys and girls have this disease and it might be well for the nurse to give the parents a few practical hints about it since it is a very disagreeable condition and a source of embarrassment to patient and family.

Treatment.

Feet should be soaked in solution of formalin, one teaspoonful to one quart of warm water every night. Rinse in cold water. X-ray treatment is the most effective.

Stockings should be changed and washed daily and hung in the outside air to dry.

If possible two pairs of shoes (low) should be provided and changed daily. When not in use they should be airing in open window or out of doors.

Zinc powder can be sprinkled in stockings. Let patient go barefooted in the summer time to harden feet.

WHAT CAN MOTHER DO FOR LITTLE JOHNNY?

BY HENRY B. ELKIND, MEDICAL DIRECTOR, MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.

OUR little Johnny is not very different from thousands of other little boys who live in this country. He is indeed quite a normal little fellow, with a few months to pass before he will have reached the age of four. His mother is intelligent and very anxious to have him grow up to be a healthy specimen of manhood. Besides, she wishes him to be successful in life and to secure as much of happiness as is humanly possible.

Johnny's mother has been reading the newspapers of late, and has been attending a number of popular lectures on child health. She has become intensely interested in Johnny's welfare. What more can she do that she is not doing, and what measures should she discontinue? Her interest aroused, she finds as a result perplexity instead of enlightenment.

Now there are many mothers like Johnny's mother — not so many, it is true, as there are boys like Johnny. What advice can we give her that is sound and helpful?

There are many things about young children that we do know, but it is also well to bear in mind that there is a great deal we do not know. Mothers should not expect too much of modern education and hygiene — they should still use their common-sense, assisted always, however, by what long experience and science have found out.

There are a number of vital facts all mothers should know about their children, and some of these will be mentioned here.

Each child is a personality, uniquely his own. He resembles other children in very many ways, but there are also manifold differences. His personality is the product of his heredity and his environment. As he grows older, the influences of environment become more evident. But in a given situation, it is always difficult to determine how much is the result of heredity and how much is the result of environment. However, many researches of the past twenty years or so have shown that heredity is not always the prime moving force, but that environmental influences do frequently play an important role in causation. For this reason it is becoming more generally realized that surrounding the child with proper healthful influences is of great importance. "As the twig is bent so is the tree inclined."

Now, what are healthful influences? (We shall not mention here control of heredity because very little is known of it and because control today is so difficult.) Science, modern medicine, and common-sense all help to answer this question. Only the more important influences will be mentioned here.

In the first place, we must influence favorably the processes of growth and nutrition. These are of extreme importance. Proper feeding is the means to this end. Sufficient calories, proper proportions of fat, carbohydrate and protein, and other food constituents, properly prepared are required. Besides being careful of what the child should eat, it is necessary to see that he gets it and that he gets it at such intervals that do not allow overburdening of the digestive tract. Correct habits of eating are as essential as the quality and quantity of the food eaten. The increasing age of the child also should be considered in the plan of diet which should generally mark time with the various physiological changes that takes place in growth.

In the second place, it is necessary to prevent the exposure of the child to known deleterious influences, i.e., unsanitary surroundings, sick children, and the like. Good water and safe milk supplies are important, as are also the quarantining of sick children and the control of germ carriers. Vaccination against smallpox is imperative; the use of the Schick Test to see if the child is immune to diphtheria is desirable and the administration of toxin-antitoxin, if the Schick Test is positive. The Schick Test need not be used but toxin-antitoxin may be employed as a matter of routine without harm. There are other measures to secure immunity from infectious diseases but those mentioned are the most important for little children.

In the third place, each child has a mental life. He is constantly laying down new nerve-paths, learning new movements, how to walk, etc., storing memories, and gaining new habits. He is constantly learning how to get along first with his parents, then with his brothers and sisters, and relatives and neighbors. He is first a bundle of instincts, gradually developing and blossoming out into habits. What his memories are depends largely upon what his parents do and allow. These may be healthful or injurious, varying with each case. Common-sense should largely rule here, and if more generally used would be very helpful to many children, for early memories frequently determine behavior — useful or damaging.

What the child's habits will be depend to an important extent upon the influences about him and what steps are taken to train him. Socially useful habits should be taught him. Habit formation, however, should not proceed to the point that it completely extinguishes instinctive tendencies. What these are, are known to us, though not completely. These do not blossom out regularly and vary somewhat with each child. Play, curiosity, imitation, the desire for praise, the tendency to collect, are some of these activities. It should be the aim of the parent to understand first the workings of the various instinctive tendencies of behavior and learn how to lead them into socially useful channels as far as is practicable.

Fourthly, the child should be protected from those influences which may, perhaps, lead to mental disorder or disease. For instance, feelings of inferiority should not be encouraged, fears should not be stimulated, hypersensitiveness should not be inculcated, and undesirable attitudes of mind toward others should be avoided.

There are numerous other bits of advice which could be given but the space allotted for this article does not permit a discussion of them. We hope, however, that little Johnny's mother and other mothers will feel a little relieved. If still in doubt, these mothers should not hesitate to consult trained physicians and receive more detailed and specific advice. Others may desire to refer their children to Habit Clinics and other clinics organized along these lines. Mothers should not hesitate to have health examinations for their children in order to note their assets and their liabilities and to receive suggestions for correcting defects, if found. To do this for the preschool child is extremely desirable for this is the golden age for hygiene and preventive measures.

HABIT CLINICS IN MASSACHUSETTS.

By Olive A. Cooper, M.D., Division of Mental Hygiene, State Department of Mental Diseases.

At the present time, one assumes that all parents and those interested in the care of children, appreciate the value of physical health for them, but it is felt that comparatively few realize the need for and importance of early mental training in helping the child to develop a sound and healthy mind. As a matter of fact, there are those who fail to consider that there exists a close relationship between the mental and physical side of the child's life and that one is directly responsible to the other for its successful development. In other words, the well being of a child comprises something more than his physical health; it includes not only consideration of his physical welfare, but also his mental development. Gradually, however, people are beginning to understand that as physical defects had their beginning in childhood, so likewise did mental defects and personality traits build their foundations sometime, probably during the preschool period. The well trained and alert individual responsible for the care of children is now availing himself of the opportunity of clinic resources where the mental life of the child may be studied and the basis for any undesirable traits that do not make for good mental development may be disclosed and treatment instituted for correcting them.

The Division of Mental Hygiene as a part of its preventive program has organized what are known as Habit Clinics for preschool children. These units aim to concern themselves chiefly with those children within the ages of two to eight years, who are manifesting any threatening or neurotic symptoms including such conditions as nail biting, temper tantrums, running away, lying, stealing, food capriciousness, enuresis, destructiveness and abnormal sex habits; in other words, they are those traits which one feels would tend to undermine the child's mental development or effect a thwarted personality later on in life and they also are accepted as habits which bear a relationship to the conditions of mental instability occurring in adult life.

An attempt has been made, in so far as has been possible, to locate these clinics geographically so that all sections of the State would receive a service. However, to date this has not been entirely practicable, since there are still sections not within reach of any of the clinic facilities. It is hoped that in time these vicinities will all be served. The following clinics are now being operated in Boston:

South Bay Union, 640 Harrison Avenue	Tuesday, A.M. 9.30
New England Hospital for Women and Children, Longwood Avenue	Thursday, A.M. 9.30
North End Health Unit, 41 North Margin St.	Thursday, P.M. 2.30
Boston Dispensary, Children's Medical, 25 Bennett Street	Friday, A.M. 9.30
Roxbury Crossing, 1049 Columbus Ave.	Friday, A.M. 9.30
West End Blossom Street Health Unit, 17 Blossom Street	Saturday, A.M. 9.30

There are also those in:

Springfield, 9 Market Street	Tuesday, P.M. 2.30
Lowell, Corporation Hospital	Wednesday, P.M. 2.30
Lynn Hospital, Boston Street	Wednesday, P.M. 2.30
Lawrence, Lawrence General Hospital	Friday, P.M. 2.30
Reading,[1] Reading High School	– –
Beverly,[2] Beverly Health Unit	– –

Any child exhibiting one or more of the above mentioned traits, and coming within the specified age range is eligible for clinic service. The name and address of the child and also a description of his problem may be sent in to the Division of Mental Hygiene, Room 106, State House, and one of the workers will in turn make the first contact with the family and assign the child to the clinic which she feels he could reach most easily.

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[1] Reading clinic once a month, 1st Thursday, 9.30.

[2] Beverly clinic once a month, 2d Thursday, 9.30.

Every patient is given on his first visit, a psychological and a psychiatric examination; the first being given in an attempt to obtain an idea of the child's intellectual equipment, while the latter is an endeavor to ascertain why, if the child is normally equipped from an intellectual standpoint, he is showing the particular difficulty which he does. A social service picture of the situation is secured before the patient visits the clinic, and a physical examination is completed in order to rule out the presence of any physical factors as playing a part in the causation. This last is of importance and necessary before one is justified in advancing on the Habit Clinic basis.

The organization of these Habit Clinics, we feel, serves as a means for fulfilling the need for preventive work among children, which all admit is becoming increasingly apparent.

NOTES FROM THE FIELD.

Well Baby Conferences have been organized in Wakefield and Milford.

Methuen has appropriated $200 to pay a physician for its new Well Baby Conference.

Rockland has started a Well Baby Conference, with Dr. E. Fitzgerald of Boston in charge.

In Adams a weighing baby clinic was started in June by Miss Young of the Red Cross. Savoy and Cheshire mothers are to be included in this group.

Miss Rose White is the new public health nurse in Grafton and North Grafton.

Miss Lillian Frost, formerly public health nurse in Harvard, is now with the Massachusetts Department of Public Health in the Division of Tuberculosis.

Miss Hibbard of South Hadley is married. Her place has been taken by Miss Emma Schenker, who was for many years with the Holyoke Visiting Nurse Association.

ANNOUNCING THAT —

the posters for advertising Well Baby Conferences are now ready.

A set of prenatal slides to accompany talks is in preparation.

Massachusetts Department of Public Health,
546 State House, Boston, Mass.

THE STUDY COURSE IN MATERNAL AND INFANT HYGIENE — 1925.

The series of conferences with public health nurses and others who are interested in maternal and infant hygiene which have been conducted during the Spring months for the past three years opened in Boston on April 7, 1925. The conferences were held in the following centers of the State: Boston, Fall River, Springfield, Pittsfield, Haverhill, Hyannis and Worcester.

While the main purpose of the study course, the joint study of the ever changing aspects of the program, has not been overlooked in this year's program, a new feature has been introduced in dramatic form. Two playlets have been given, one demonstrating a prenatal nursing visit and the other a well baby conference. The parts were taken sometimes by members of the staff of the Division of Hygiene and at other times by local talent. The reception accorded these "artists" has been cordial.

As in previous seasons an obstetrician and a pediatrician bring us the newest word each from his own field. Considerable interest has been shown in the round table discussion shared in by physicians, nurses and directors of nursing organizations. Discussion has centered about such debatable questions as the responsibility of the public health nurse in prenatal care and the limit of her responsibility. Some physicians feel that prenatal care is a responsibility of the medical profession alone.

Another question as to which there is much difference of opinion is that of adapting the feeding of a growing child to its needs. Easy though it is to define this responsibility in a well conducted baby conference with an attending physician bent upon loyal support of his associates, it becomes a most difficult matter to a nurse carrying on a weighing and measuring station without medical attendance.

The conferences closed with a few words on the maternal and infant hygiene program throughout the State.

THE COMMONHEALTH.

QUARTERLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
FRANCES KLEIN, S.B., ASSOCIATE EDITOR.
Room 546, State House, Boston, Mass.

Prevent Diabetic Deaths. — Insulin, the internal secretion of the pancreas, prevents diabetic coma, or, once coma has developed, it relieves the condition promptly if administered in time. Hence with the advent of insulin deaths from diabetic coma should be no more. But we find them still reported, and at about twice as high a rate in the country as in the city. Again the per capita consumption of insulin in the country is markedly lower than in the city. These two facts are as logical as a problem in geometry. The less the consumption of insulin the higher the death rate from diabetic coma. The solution is obviously to increase the consumption of insulin in the country.

In May the Department of Public Health sent to each physician an "Emergency Package" containing 100 units of insulin. Because of the considerable cost, enough material is available for this single distribution only. Therefore the doctor should not use it in his routine treatment of a case, but should carry it in his bag for the case of threatened coma that he sees in the evening, on a Sunday, or at any time when there would otherwise be a delay of hours in obtaining insulin. This delay frequently means death. The material is stable, remaining potent at ordinary temperatures for at least a year. This distribution is not made to doctors in Boston because no such delay need ever occur. Hospitals and many drug stores are stocked with insulin which can be obtained at any hour.

Such distribution is made possible through the co-operation of Dr. Elliott P. Joslin. Some time ago Mr. John D. Rockefeller, Jr. gave a considerable sum for the purchase of insulin. Part of this was entrusted to Dr. Joslin. Much of the expenditure already made has been for material for hospitals and physicians in and around Boston. From what remains it seemed suitable to distribute to those who so far have profited the least and whose need is the greatest. The Department is glad of the opportunity to assist in this. If the rate of deaths from diabetes in the country can be cut to that of the city, the expenditure will be more than justified. Universally early use of insulin will eliminate the coma deaths and Massachusetts should be the first State to accomplish this.

Are Physicians Interested in Preventive Medicine? — Believing that the private physician is the ultimate unit in preventive medicine, as in curative medicine, the Massachusetts Department of Public Health has prepared for distribution by physicians a card urging persons to go to their private physician for prophylaxis against smallpox, typhoid and diphtheria, and for periodic health examinations. A sample card was sent to every physician in the State, accompanied by a letter explaining its object. Though 5,834 letters were sent, it is estimated that the card is especially adapted to about 2,698 recipients, as specialists and research workers would not find use for the card. After three weeks the Department had requests for a supply of cards from 135 physicians, or one in 19 of the group of potentially interested physicians. The number of cards asked for varies from "a few" to 2,500. The physicians are distributed in both large and small communities all over the State. In addition, requests for cards were received from eight boards of health, two industrial physicians, three hospitals and sanatoria, one school and public health nursing association. One board of health plans to print 10,000 of these cards for distribution in all the schools, and another asks for 2,000 to give out through the teachers. An industrial physician plans to put a card in each pay envelope.

A copy of the card follows:

COMMONWEALTH OF MASSACHUSETTS.

Department of Public Health.

Preventive Medicine from Your Family Physician.

There are at least three common diseases that can be prevented. Any case of these diseases in your family means that available methods have not been used.

(1) Smallpox may be prevented through vaccination. Recently smallpox has been widely spread over the country and in some places it has been of the malignant type.

(2) Typhoid fever may be prevented through the periodic injection of typhoid vaccine. "Vacation" typhoid is mounting with the increased crowding of the country.

(3) All your family can be protected against diphtheria. Your private physician will explain how.

Diseases of middle life due to "wear and tear," such as Bright's disease, arteriosclerosis, cancer and diabetes are increasing. These diseases can be combatted by corrected habits and early recognition. Periodic health examinations at all ages may save you from these diseases.

Talk these matters over with your physician.

An American Health Congress. — In order to give health workers from every part of the country a bird's-eye view of the public health movement in its broadest aspects, the National Health Council at 370 Seventh Avenue, New York City, has planned for an American Health Congress to be held at Atlantic City during the week of May 17th, 1926.

The leading authorities on each phase of the public health movement; such as tuberculosis, cancer, heart disease, blindness, social and mental hygiene, public health nursing, preventable diseases, and positive health education for both children and adults, will present the latest and most authoritative findings and programs for the solution of these problems.

Among the groups that will co-operate in the Congress are the following members of the National Health Council:

American Child Health Association; American Heart Association; American Public Health Association; American Red Cross; American Social Hygiene Association; American Society for the Control of Cancer; Conference of State and Provincial Health Authorities of North America; National Committee for Mental Hygiene; National Committee for the Prevention of Blindness; National Organization for Public Health Nursing; National Tuberculosis Association; United States Children's Bureau; United States Public Health Service; Women's Foundation for Health.

In addition to these groups, it is anticipated that leading health associations of Canada, Mexico and elsewhere will cooperate in this Congress.

The American Nurses Association, the National Organization for Public Health Nursing, and the National League of Nursing Education, will hold their regular biennial meeting during this same week at Atlantic City. The General Federation of Women's Clubs will meet directly after the Congress.

Already well organized plans are under way. The Atlantic City convention authorities and the hotels will cooperate to the fullest extent. The Steel Pier has been engaged for headquarters and meetings will be held there and at the nearby hotels on the boardwalk. Part of the space on the Steel Pier will be used for commercial and educational exhibits. A strict censorship will be exercised, however, in order that the exhibits may conform with the high standards of such a meeting.

MAY DAY.

The second annual celebration of May Day as Child Health Day took place this year all over the country under the leadership of the American Child Health Association. In Massachusetts an effort was made to center the celebration in the schools. To this end a letter was sent by the State Departments of Education and Public Health to every superintendent of schools urging the importance of Child

Health Day and offering suggestions for May Day celebration, including the May Pole and Morris dancing, games, and a health play entitled "Crowning the Health Queen."

Other efforts to emphasize the meaning of Child Health Day included a radio talk by the Governor of Massachusetts; one by the State Commissioner of Education of Massachusetts; and one by the State Chairman on Child Health Day.

As a concrete example of what Child Health Day may mean to little children, there follows a brief description of the exercises in one of the crowded school districts of the city of Boston. Nothing could be more encouraging than to see the keen pleasure the children themselves took in these exercises and to realize the real effort back of it all.

NATIONAL CHILD HEALTH DAY AS CELEBRATED IN THE WASHINGTON SCHOOL DISTRICT, BOSTON, MAY 1, 1925.

The Washington District, located in the West End and made up of two schools, the Washington and Mayhew buildings, draws its children from one of the most congested sections in Boston. In the Washington building are thirteen hundred children ranging from the kindergarten through the eighth grade. In the Mayhew building are four hundred children going from the kindergarten through the fourth grade.

In these two schools are boys and girls of many nationalities, principally Italian, Russian and Polish. In preparation for the observance of National Health Day, Mr. Benjamin J. Hinds, the Principal, circulated the following notice throughout the district on Wednesday, April 29, 1925.

> "*Friday May 1st is Health Day.*
>
> Please devote some period during the day to a suitable consideration of the subject. Last year I suggested as a "Washington Special" a complete bath and the possession and use of a tooth brush by every child.
>
> We went 100%
>
> Please strive for as good a showing as last year."
>
> BENJAMIN J. HINDS, *Principal.*

Following the receipt of this notice, by concerted action and concentrated effort on the part of the teachers, seventeen hundred children marched into school the following morning the very personification of cleanliness. It is a usual thing for all the children to take a bath but unusual for seventeen hundred children to bathe on a day's notice. By implicit obedience they contributed to the celebration of Child Health Day and joined in the parade of " 100% Clean."

This parade started in the Mayhew School at 10 A.M., Miss Sophia G. Whalen, Master's Assistant, directed the march. Two four year old kindergarten children, one born in Russia, the other in Italy, lead the parade and carried the American flag. The procession was up and down the broad stairway, each teacher escorting her class. The school victrola played patriotic march music to emphasize the fact that it was National Health Day. Many American flags were carried in the parade.

In the Washington School at 10.40 A.M., conducted by Mr. James E. Lynch, Sub-master, assisted by Mr. William F. Cannon, Sub-master, the parade started on the fourth floor marching up and down the broad corridor. Leading the procession were five boys each carrying a class room flag, followed by a little girl who stepped out of line and presented Mr. Hinds with the following letter.

> "DEAR MR. HINDS: — Here we are — your children. We are all cleaned up and dressed up. We want to say Happy May Day to you and yours. If you like us, please smile.
>
> Your loving children of the Washington District."

Then the seventh and eighth grades filed out of their rooms, banners waving and heads erect. They stepped proudly past the flag midway in the procession, halted and standing at attention, as directed by Mr. Lynch, gave in unison the salute to the flag.

The spectators then went down to the third floor where the parade of younger children was continued to the second and first floors. At the head of the line as the boys and girls marched two by two from each room was borne a white pennant with a red circle in the center on which was inscribed the number of the room. The brilliant colored costumes of the boys and girls with matching bows and bands upon their heads gave life and color to the occasion. One first grade was headed with a banner, "100% Clean." A second grade bore the banner "Cleanliness Means Health." The boys wore neckties of uniform color and matching boutonnieres. A seventh grade, armed with tooth brushes saluted Miss Helen F. McCaffrey, Supervising Nurse. The appearance of the boys with light blouses and neckties, polished boots and tidy stockings, hair scrupulously combed was indeed inspiring.

Three banjoists and a drummer from the school orchestra, under the direction of Miss Theresa E. Fraser, Master's Assistant, furnished the music.

Interest was manifested by all. The children were very much enthused and their parents did all they could to express their heartfelt thanks and appreciation for the many efforts put forth by the Boston Public Schools in their children's behalf.

The school physician, Dr. George J. Oberlander, concluded the programme with a talk to the children in simple language on "The Prevention of Tuberculosis."

The happy faces and fine appearance of the children from the little tot of four in the kindergarten to the Open Air Class of second grade who are physically below normal through the eighth grade of husky ball players were evidences of the success of the Boston school system in health education.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of January, February and March 1925, samples were collected in 122 cities and towns.

There were 1,515 samples of milk examined, of which 335 were below standard, 29 samples had the cream removed, and 51 samples contained added water.

There were 910 samples of food examined, of which 158 were adulterated. These consisted of 12 samples of butter which were low in fat; 32 samples of eggs, 31 samples of which were cold storage not properly labeled, and 1 sample was decomposed; 39 samples of dried fruits which contained sulphur dioxide, not properly labeled; 44 samples of sausage, 16 samples of which contained starch in excess of 2 per cent, 17 contained a compound of sulphur dioxide, 6 contained starch in excess of 2 per cent and a compound of sulphur dioxide, 1 contained coloring matter, 3 were decomposed, and 1 sample of kiszki sausage which contained more than 2% and less than 20% cereal; 2 samples of cider which contained benzoate; 19 samples of soft drink which contained saccharine; 7 samples of vinegar, 6 samples of which were low in acid, and 1 sample diluted with water and not properly labeled; 1 sample of canned peas which was decomposed; 1 sample of clams which contained added water; and 1 sample of maple sugar adulterated with cane sugar other than maple.

There were 4 samples of mattress fillings examined, 2 samples of which were not as labeled. One sample contained foreign fibers, and the other contained second-hand material.

There were 139 samples of drugs examined, of which 27 were adulterated. These consisted of 25 samples of spirits of nitrous ether, and 2 samples of lime water, all of which did not conform to the U. S. P. requirements.

The police departments submitted 2,277 samples of liquor for examination, 2,236 of which were above 0.5% in alcohol. The police departments also submitted 42 samples of poisons for examination, 23 of which were morphine, 12 opium, 1 heroin, 1 cocaine, 1 aspirin and calomel, and 4 samples were examined for poison with negative results.

There were 12 samples of coal examined, 4 samples conforming to the law, and 8 samples contained an unreasonable amount of impurities.

There were 71 hearings held, and 8 warnings issued, pertaining to violations of the Food and Drug laws.

There were 95 convictions for violations of the law, $1,592 in fines being imposed.

Edward Brennan of Gloucester; Michael Gilhooley of Gardner; William Delias of Pittsfield; Roy Carvell, Ossin M. Ossin, Thomas J. Welsh, and Charles A. David, all of Springfield; Jacob H. Tarjan of Cambridge; Thomas E. Latham of Chelmsford; James Noke and Nicholas Glogeni of Watertown; Patrick Noons of Rehoboth; Arthur G. Parasky of Revere; Max Porter and John Jarzynka of Salem; Adam Zirasnska of Norwood; George W. Bustead and Patrick J. Keating of Burlington; Prescott C. Butterworth of Somerset; Frank Leukowski of Northampton; and Thomas Ruffall of Worcester, were all convicted for violations of the milk laws. Edward Brennan of Gloucester, Jacob H. Tarjan of Cambridge, and Max Porter of Salem, all appealed their cases.

The Ginter Company, Houghton & Dutton, Rose Tea Grocers Incorporated, Julius Smokler, and Israel Berow, all of Boston; Economy Grocery Stores Company, Abraham Finn, Max Gopin, Peter Kamagh, and Joseph Lear, all of Chelsea; Fred J. Allard of Lowell; Thomas Brazell, on 2 counts, of Gardner; Hyman Cohen, Hyman Coltov, and Louis Katz, all of Lynn; Bert S. Range of Westfield; George Nelson of Gloucester; George P. Borlen of Newburyport; Joseph Perlman of Roxbury; The Great Atlantic & Pacific Tea Company, 2 cases, of Lawrence; Manhattan Market and Julius Fradkin of Cambridge; Max Jacobson, Fred Souda, and Sylvester Roscoe, all of Worcester; James Morrison, 2 cases, and Hugh L. Morrison, both of Everett; and William P. Meyer of Somerville, were all convicted for violations of the food laws. Rose Tea Grocers Incorporated of Boston, Fred Souda and Sylvester Roscoe, both of Worcester, and Joseph Perlman of Roxbury, all appealed their cases.

Lagrange Street Public Market of Boston was convicted for misleading advertising. They appealed the case.

Ralph Canglano of Boston, and Simon Michaelson of Revere, were convicted for violations of the drug laws.

Steve Mozukl of Lawrence; Chester E. Walker of Westfield; Harry W. Mead of Norwood; Martin Yalinsky, Arthur Koufogagos, Joseph Lasczeuski, Bennie Rostler, Louis Cushing, Stelne Blazewicz, and John J. Inglis, all of Lowell; Donat L'Hereux and Harris Mihalakas of Salem; Clifford D. Mellor of Stoneham; Louis Leverson of Worcester; William Boreck, Joseph Bryll, Ahiler Fernandes, Joseph Greenstein, Max Greenstein, Joseph Jesus, Charles J. Larivere, Antonio Leitao, 2 cases, Joseph D. Mello, Manuel J. Mendes, Hyman Miller, Antonio B. Moniz, Andrew E. Nanopoulos, Stanley F. Niemiec, Caesar F. Rogers, and Tarini Serafino, all of New Bedford; and Samuel Demchuck, David Friedlander, William Krasnoff, Felix Lutkewicz, Augustus Vechiarello, Anthony Grace, Peter Nobrega, and Joseph Pladzwicz, all of Cambridge, were all convicted for violations of the cold storage laws.

Cooper & Sisson, Incorporated, of Providence, Rhode Island, was convicted for misbranding. They appealed their case.

National Butchers Company of Beverly, and Meyer Kronick of North Adams, were convicted for false advertising.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 9 samples, by Patrick Noons of Rehoboth; 8 samples, by Antone Lemos of Acushnet; 6 samples, by Thomas E. Latham of Chelmsford; 4 samples each, by Ferne H. Lee of Millis, and George W. Bustead of Burlington; 3 samples, by Prescott C. Butterworth of Somerset; 2 samples, by Patrick J. Keating of Burlington; and 1 sample, by Augustino Visocchi of Maynard.

Eight samples of butter which were low in fat were obtained from Whiting Milk Companies, Charlestown.

Dried fruits which contained sulphur dioxide, not properly labeled, were obtained as follows:

Four samples, from The Great Atlantic & Pacific Tea Company of Lawrence; 2 samples, from The Ginter Company of Boston; 1 sample each, from Houghton & Dutton Company, and Rose Tea Company, both of Boston; John T. Connor Company of Roxbury; M. Winer & Company of Haverhill; The Cloverdale Company, and M. O'Keefe, both of Holyoke; and Cobb, Bates & Yerxa Company of Malden.

Sausage which contained starch in excess of 2 per cent was obtained as follows:

Three samples, from William P. Meyer of Somerville; 2 samples from George P. Borlen of Newburyport; 1 sample each, from Balkus Sausage Company, and Boscobel's Market, both of Lynn; Medford Square Market of Medford; and Fred Souda of Worcester.

Sausage which contained a compound of sulphur dioxide was obtained as follows:

One sample each, from Max Gopin, Abram Finn, and Jacob Berger & Peter Kamagh, all of Chelsea; Acme Market, William Shapiro & Hyman Colkotow, Louis Katz, and Hyman Cohen, all of Lynn; B. Stenberg of Worcester; and Hugh L. Morrison of Everett.

Three samples of sausage which contained starch in excess of 2 per cent and contained a compound of sulphur dioxide also, were obtained from James Morrison of Everett.

One sample of sausage which contained coloring matter was obtained from Ermmano Cesati of Haverhill.

Soft drinks which contained saccharine were obtained as follows:

Seven samples, from Sylvester Roscoe of Worcester; 4 samples each, from American Soda Company of Worcester, and Thomas Brazell of Gardner; 3 samples from Indian Rock Bottling Company of Worcester; and 1 sample, from Queen Bottling Company of Worcester.

There were seven confiscations, consisting of 242 pounds of decomposed beef, 60 pounds of dried out beef, 150 pounds of uninspected veal, 56 pounds of immature and unstamped veal, and 5 gallons of decomposed oysters.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of December, 1924: 357,660 dozens of case eggs, 239,156 pounds of broken out eggs, 1,024,522 pounds of butter, 6,687,080 pounds of poultry, 8,043,090 pounds of fresh meat and fresh meat products, and 1,816,872 pounds of fresh food fish.

There was on hand January 1, 1925: 3,110,790 dozens of case eggs, 633,728 pounds of broken out eggs, 11,508,537 pounds of butter, 11,458,090 pounds of poultry, 11,717,038 pounds of fresh meat and fresh meat products, and 9,182,602 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of January, 1925: 256,080 dozens of case eggs, 446,210 pounds of broken out eggs, 1,029,600 pounds of butter, 2,241,832 pounds of poultry, 8,017,453 pounds of fresh meat and fresh meat products, and 1,526,741 pounds of fresh food fish.

There was on hand February 1, 1925: 448,890 dozens of case eggs, 570,415 pounds of broken out eggs, 7,779,956 pounds of butter, 12,233,051 pounds of poultry, 15,924,583 pounds of fresh meat and fresh meat products, and 6,919,776 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of February, 1925: 177,300 dozens of case eggs, 199,108 pounds of broken out eggs, 570,933 pounds of butter, 951,809 pounds of poultry, 4,510,678 pounds of fresh meat and fresh meat products, and 1,135,933 pounds of fresh food fish.

There was on hand March 1, 1925: — 15,750 dozens of case eggs, 272,848 pounds of broken out eggs, 5,175,881 pounds of butter, 12,031,485 pounds of poultry, 18,085,200 pounds of fresh meat and fresh meat products, and 3,774,654 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, Eugene R. Kelley, M.D.

Public Health Council.

Eugene R. Kelley, M.D., *Chairman.*

Roger I. Lee, M.D.	Richard P. Strong, M.D.
Sylvester E. Ryan, M.D.	James L. Tighe.
Warren C. Jewett.	Francis H. Lally, M.D.

Secretary of Department, Frances L. McCloskey.

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Division of Sanitary Engineering	Director and Chief Engineer, X. H. Goodnough, C.E.
Division of Communicable Diseases	Director, George H. Bigelow, M.D.
Division of Water and Sewage Laboratories	Director and Chemist, H. W. Clark.
Division of Biologic Laboratories	Director and Pathologist, Benjamin White, Ph.D.
Division of Food and Drugs	Director and Analyst, Hermann C. Lythgoe, S.B.
Division of Hygiene	Director, Merrill E. Champion, M.D.
Division of Tuberculosis	Director, Sumner H. Remick, M.D.
State Examiners of Plumbers	Clerk, David Craig.

State District Health Officers.

The Southeastern District	Richard P. MacKnight, M.D., New Bedford.
The Eastern District	George T. O'Donnell, M.D., Boston.
The Northeastern District	Lyman A. Jones, M.D., Swampscott.
The North Midland District	Charles E. Simpson, M.D., Lowell.
The Worcester County District	Oscar A. Dudley, M.D., Worcester.
The Connecticut Valley District	Harold E. Miner, M. D., Springfield.
The Berkshire District	Leland M. French, M.D., Pittsfield.

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Health Education Number

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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RELATION OF HEALTH EDUCATION TO PUBLIC HEALTH.

By Sally Lucas Jean, Consultant.

THE success of a public health program depends upon co-operation of individuals, and health education in the schools offers the most direct method of reaching the adults of the future. Indirectly parents are tremendously influenced by the health training their children receive in school day by day. This is particularly true of foreign parents who do not understand the new language or strange customs of their adopted country.

The term "health education" was introduced a few years ago to designate the modern plan for teaching hygiene in schools though Dr. Thomas D. Wood first used "health education" in a paper presented before the American Academy of Medicine, Washington, D. C., May 11, 1903. Both teachers and pupils had come to associate a period of boredom with lessons in hygiene which though usually compulsory in the upper grades of elementary schools, had little or no relation to the teacher's or child's own life or interests and was consequently dull.

Though many thoughtful health authorities and educators were aware of the inadequacy of hygiene as taught in schools it was not, however, until 1918 that a definite movement was launched to change the existing condition and to consider hygiene teaching as a subject of great importance and one worthy of attention. This effort was based upon the belief that knowledge had far exceeded practice and that the psychological approach should be positive rather than negative, placing the emphasis upon the desirable health habits rather than the undesirable results which were apt to ensue upon the failure to obey the laws of health.

Realizing that the teachers of the country had not been prepared for this new angle of health instruction, health essentials were interpreted for the use of teachers and concrete definite methods devised.

The health statistics revealed by the draft furnished dramatic material around which much of the first propaganda was built. It was obvious that if such a large proportion of the young men who had been in our schools such a short time previous had not acquired habits of healthy living there was need for some action to bring about a change. For instance, an ample water supply had been usually available during the entire life time of these young men but they had not always learned its use as many of their defects indicated. The homely adage, "You can lead a horse to water but you can not make him drink" is a truism which public health officials recognize as applicable to human beings. Laws and regulations of the most excellent character pertaining to the use of a water supply can be made but to secure the use of a sufficient amount of water by each individual, within and without, presents another problem.

In the interior of the Republic of Panama recently, straight bodied girls were observed carrying water on their heads a distance of three-quarters of a mile. The entire supply for the village, from a stream none too pure, was thus transported as had been the custom for hundreds of years. A public health official explained that it was not worth while to drive a well in the village, though it could be done at little expense, until the people themselves desired such a convenience because the water would not be used.

The child who learns to drink water freely and to desire to be clean and to live in clean surroundings furnishes an example of health education and its relation to public health.

METHODS.

The methods used by modern school systems to teach health are of interest to all and form a fascinating story.

Believing that habits are best formed through association of pleasurable emotions, health educators encouraged happy competition between classes, each group being stimulated to reach their highest physical condition.

Therefore a goal was set within the child's own understanding — weight for his height and age and regular steady gains month by month. This is easily understood by children of all ages and to contest with yourself, your classmates and your school is a goal worthy of each.

The Greek lad had placed before him examples of beautifully developed bodies, and parents and masters held up to him the possibility of as perfect development as this or that well-known figure. The youth of today have their gods of physical perfection and even though they wear the mask of football, cricket or other athletic attire they are none the less worthy of emulation. These young giants furnish the physical ideal for the boys and girls in our school today as did the Greek athlete of two thousand years ago for the boy of that period.

Children are accustomed to following rules in their various games and the training table with its regulations is well known to them as being conducted according to definite rules. So in framing health laws for school use the terminology of the sport world was used and the "Rules of the Game" came into being. These have now become known throughout this country and are familiar to many children of other lands.

HEALTH.

Rules and weighing are of course not enough to insure a program of effective health teaching, but they are the most important factors in the health education program.

Correlation of health teaching with all subjects of the curriculum has been found the most satisfactory method of instruction. Many geography and history lessons of today are being illumined by health implications while the teaching of civics offers obvious opportunities for instilling in children's minds the relationship between themselves, their families and the well-being of other people in the city, state, nation or world.

Arithmetic, spelling, reading and writing are all being used effectively for health teaching while many art departments may have perhaps stressed health at the expense of their subject. Poster making is such an attractive method of portraying children's knowledge of health and the school's health program that there is danger of teaching neither art nor health. The child who makes a poster himself is of course interested in the subject he is depicting but it has been found that the successful health lesson is only taught through poster making when the teacher is herself interested in the health lesson and thus stresses the object of the lesson.

Such slogans as —

"An apple a day keeps the doctor away" do more harm than good, and the generalized sentence, "a clean city for me" is too far removed from the child's life to be of practical value in his daily practices.

This is not to be interpreted as a condemnation of postermaking but rather as a suggestion that it is of importance to guide children's interest in poster making as in arithmetic practice.

Interest in the baby is probably the best method of transferring a child's interest in his own health to community health problems.

In the schools of Newton, Mass., the children of the fourth grade filled the Baby Welfare Station through their determination to have all the babies of the district enter school strong and healthy in 1930. This wave of interest was not an accident but carefully guided by wise leaders.

The "Chicken Club" in one of Malden's schools was used as a health teaching opportunity and they discussed foods for laying hens in relation to food for boys.

THE SCHOOL JANITOR.

Health education is only a part of a school health program but it is the classroom teacher's part and no one can relieve her of this duty.

The school doctor, the nurse, the specialist all play a part and the school janitor too; this gentleman decides what sort of an atmosphere the children and their teachers shall breathe and the cleanliness of the rooms in which they spend their days. He is coming at last into prominence as an important factor in the school health program. We have usually allowed him to be appointed without much regard to his fitness or attention to his guidance as an officer of the municipality.

One step has been taken to raise the standard of the school janitor by preparing literature especially for his use. Several interpretations of the New York Ventilation Commission Report have been made and one version is now being prepared for the Janitor himself by the Metropolitan Life Insurance Company.

To assist the Janitor to become of the greatest assistance in the schools of the country, public opinion is necessary and carefully developed gatherings, of this special group, should be encouraged with speakers provided who are familiar with the problems with which this important guardian of our children's health is faced.

When the school janitor is recognized, as he sometimes is, as a part of the school health program, we will have filled one more gap existing between knowledge and practice and furnish our school children with the kind of air which the most modern study of the subject indicates as desirable.

HAND WASHING.

The provision of water — warm water — for hand washing with soap and towels is supposed by many well informed people to be used in schools but sad to say such is not the case.

We talk of hand washing after a visit to the toilet and before eating but there are few schools in the country where adequate — adequate, mind you — provision is made for this simple normal performance about which we spend so much time talking. Such precepts without practice are not only useless but harmful.

Go into the basements, where the toilets and the only hand washing facilities exist in the usual school, and you will come away wondering how our children are as clean as they are. On the other hand, simple inexpensive equipment provided by the resourceful principal has brought about satisfactory hand washing facilities and resulted in the hand washing habit in many schools. Where there is a will there is usually a way, but, when planning a school health program, be quite sure soap, towels, warm water and toilet paper are made available as well as the well prepared teacher who will train children in their use.

THE SCHOOL LUNCH.

The school lunch has become an established routine in many schools and is important whether it takes the form of a hot midday dish or mid-morning milk.

Wherever children are gathered together for hours food should be available for those below par or when all children are unable to have at least a hot mid-day dish at home. But it is well to consider the conditions under which children take this food. The only space available, all too often, is a hall or cellar room, both without seating capacity.

The classroom is the answer under such conditions and can be used without difficulty or complication. The children manage the serving of milk, the collecting of pennies and the brushing up of crumbs if properly organized. The classroom lunch offers an excellent opportunity for stressing good eating habits which all children require encouragement to practice. Food eaten in the rush of a crowded hall where seats are not provided can scarcely be considered a part of the health program though perhaps offering necessary sustenance.

Physical Examination.

The value of physical examination in a school health program can scarcely be estimated. Medical inspection has become usual in all parts of the country but the service varies from the hasty inspection without removing clothes to the carefully conducted thorough physical examination in the presence of one of the child's parents.

There can be no more important opportunity to relate the public health program to the life of the individual than this school service. The child and the parent are impressed by, if not appreciative of, the individual care given in considering each child's health needs, and both can here be influenced favorably toward such official service. This is the place to indicate the meaning of a thorough physical examination and rare indeed is the instance of objection to physical examination or recommendations when the parent is present.

The day is not far distant when parents will be notified in advance of the date and hour of school examinations and their presence will become usual rather than otherwise. This is true in some sections of the country now. A city of the North West reports 63.6% attendance of parents during the last year while from the far South one colored school had, during the past Winter, 64% of mothers present during the examination of their children.

It is well known that children's defects are corrected in proportion to the intelligent interest of parents. An enormous increase of attention can be expected from the presence of the children's natural guardians during the school doctor's examination and thus one more link is forged between public health precepts and the practices of individuals.

The 1923 Annual Report of the Chief Medical Officer of the Board of Education, Sir George Newman, for England, Scotland and Wales, states that parents are notified of the proposed date of the school medical examiner's visit and are urged to attend.

It is only necessary to make parents' attendance fashionable to secure their presence; the custom *can be* established.

The School Nurse.

The school nurse, God bless her, does, when she is the right sort of person and has the proper training, some of the work of the social worker, the attendance officer, the teacher, the doctor and the mother as well as her own.

She is an exceedingly important link between the home and school but she usually has too much to do. Her territory is too large and her duties too arduous to permit the thoroughness she desires. The result is, either a sense of futility on her part or she rests content with limited success in securing the removal of defects.

Read the reports on school work from any part of the country and you will be impressed with the similarity of the statements — visits to schools; number of pupils inspected; number found defective; visits to homes; number of defects corrected, the latter, by the way, rarely, if ever, reaches 50% of the children examined and found defective. Such records afford little idea of the work of these women who have become the guides and advisors of children, parents and teachers.

Frequently the school nurse is the only person regularly visiting the schools who has a knowledge of health and she brings with her the atmosphere of one who knows how to keep you well and what to do when you are sick.

Children are ready to follow her instructions as are their parents but she can not be present in the classroom often enough to train the children in health habits.

Her work is that of a friendly supervisor who mothers all the children, makes it possible for them to get their defects corrected, sets the health standard for them, visits homes as may be necessary, keeps the teacher informed as to home conditions affecting the health of the child and assists the teacher in establishing health habits by adjusting home conditions, making arrangements for treatments and interpreting the school doctor and the clinic to the child, his parents and his teachers.

The most important work of the school nurse is not in the classroom but rather as a guide to the leaders. The nurse knows what is desirable for the child to be taught and the teacher knows how to train the child to practice her teachings. Carefully prepared talks by the school nurse before Teachers' Institutes or Parent-Teacher groups is of much greater value than classroom lessons.

The nurse who is able to institute regular monthly weighing as a means of interesting children in their growth can be most helpful by demonstrating the best procedure and encouraging the teachers to perform this talk with the assistance of the children themselves.

The nurse who relieves the teacher of this routine has taken time from other duties which no one else can perform and the teacher loses this incentive to train each child of her class in the health habits which are most important for him to practice. The knowledge of each child's weight gives the teacher a lever of the utmost importance in teaching health, and though this record can be imparted by a report of the nurse, the association in the child's mind with his weight is then centered around the nurse, and not the teacher from whom he must expect his health training to come day by day.

The link between the school and the home can best be filled by the nurse as she furnishes the only means we now possess for carrying directly into the home public health information.

The value of this message is tremendously increased by having it come from the one person who can verify the health message which the child brings home day by day from the school.

TEACHER TRAINING.

During the last seven years great strides have been taken in preparing teachers to teach health.

Teacher training institutions in all parts of the country are offering carefully developed and practical courses and thorough practice work. Post-graduate study is also available in several universities now offering courses leading to degrees in health education. Well trained individuals are serving with both health and educational authorities in states, counties and cities, as supervisors in health education, though such appointments have not become usual.

The local educational authorities are turning to the health officials for guidance in the development of school health programs with a recognition of the necessity for working out an all around plan together. The public health official and the doctor know what our children should know about health and the educator knows how these facts should be taught.

Surround the school child with an atmosphere of joyous health. This circle of protection is formed by his parents, the doctor, the nurse, the teacher, health officials, educational authorities, the specialist in home economics and the physical educator as well as the JANITOR.

The child who is being trained by school officials and teachers, who are themselves well trained in health teaching, is the citizen of tomorrow from whom we can expect wise voting on all health matters and an intelligent application of health laws.

HEALTH AND THE SCHOOL.

By J. Mace Andress, Lecturer on Health Education, Boston University and Boston School of Physical Education.

"WHERE there is no vision the people perish" is one of the most remarkable of those proverbs that have come down to us from the dim historic past. It referred originally only to the moral and religious life, but it applies to every aspect of human affairs. It seems to have special significance today in matters relating to public health and personal hygiene.

In the past the school had little thought concerning hygiene and sanitation but today it is catching one of the most splendid visions of its mission in promoting health. The first essential is this: that the school shall stand midway between the scientific discoveries of the laboratories on one hand and the children who are to be trained on the other. Scientific knowledge must be made available for humanity. Enough is now known in the way of scientific knowledge to banish some diseases like smallpox, yellow fever and typhoid fever from the earth. One eminent authority also maintains that fifteen years could be added easily to the average length of life by practicing some of the simple laws of personal hygiene. But there is still a great gap between scientific knowledge and action. There was a time when it was thought that public health measures alone were adequate for the attainment of the general health. The miracles of saving human life through such procedures as the purification of the water supplies seemed at first to justify this expectation. But there was a limit to such achievements. Even when a pure water and milk supply is assured it does not mean that people will drink the proper amount of water and milk. Even the best health legislation has its limitations. It is true that pure food laws are highly desirable and have accomplished much good, but legislation can not insure a balanced diet on the part of members of the community. Both public health and legislation have now made their greatest contributions. *The great opportunity of the future lies in health education.* If the present generation can be trained properly in health life will be much longer and happier than ever before.

Health may be considered from a physical and a mental standpoint:

In promoting physical health the school should first of all provide a healthful environment for children. The school rooms should be well lighted, heated and ventilated. School furniture should be adjusted to children. Playgrounds should be adequate in size, have apparatus adapted to children's needs and some kind of personal supervision. But a healthful environment physically is not sufficient. To get results we must also deal directly with the children themselves.

Some of our most progressive school systems have established pre-school clinics. To such clinics parents may take their children for medical advice free of charge. A physician and nurse are usually in charge of this clinic. Its purpose is to help get the children ready for school entrance. This may involve advice concerning the removal of tonsils or adenoids or better feeding in the case of malnutrition.

In our best schools an effort is being made to give children a thorough physical examination at school entrance. At such examination it is desirable to have at least one parent present and the school physician, school nurse and teacher. This makes possible the enlightenment and co-operation of all those most vitally concerned in the welfare of the child. Such examinations should seek not only to remove physical defects but to help establish the right kind of habits of living.

After children enter school there should be additional physical examinations by regular school physicians at intervals of one year, and as often for individual children as their needs demand. The word medical examination is now giving way to the term health examination to emphasize not only the detection of physical defects but to discover the slightest variations from health. As a result the physician may suggest medical or hygienic treatment. For example, a child may not be ill or have organic defects but be losing steadily in weight. Under such circumstances the school needs the expert advice of the physician to determine the significance of this symptom and suggest medical treatment or hygienic training. Unfortunately so-called medical or health examinations of school children are usually very superficial and unsatisfactory. This is due largely to school physicians being employed on part time and without adequate compensation.

The school nurse is indispensable for a school that aims at healthful living. Her function is to assist in health examinations, advise teachers and do follow-up work in the homes. This involves not only bringing pressure to bear on parents to get physical defects corrected but also advising parents as to the training of children in matters of personal hygiene.

The home economics teachers is a special health teacher. Too often her work has been extremely theoretical and lacking in motivation. Our best teachers are connecting it with the practical living of the pupils. Foods, for example, may be studied from the point of view of the individual pupil's health. Since many of the girls taking food courses have the care of younger brothers and sisters and are only a few years away from matrimony and the responsibilities of the home, the subject matter may be organized around the problem of the care and feeding of children.

The physical education instructor is one of the most important of the special health teachers. An interest in wholesome physical activity is desirable for the building of good physical bodies during the school period and for mature life. Incidentally the teacher of physical education may give much valuable instruction because of intimate contact with pupils.

But after generous acknowledgment of the contribution of school physician, school nurse, home economics teacher and physical education instructor it should be realized that the classroom teacher in the grades must assume the larger part of the responsibility for health teaching. It is through classroom teaching that we must expect children to get a more or less systematic survey of the subject matter of health. Because of daily and even hourly contact with pupils the classroom teacher has the greater opportunity to train pupils in health habits. It is possible to check the practice of these habits daily.

Within the last ten years there has been no field of education which has showed such originality and been so fertile in attractive methods as the field of health teaching. Health crusades, cleanup campaigns, poster making, and health plays have been conspicuous methods of teaching. Health is being taught more and more as activities than as knowledge.

Since good health is one of the fundamental aims of education, experts in the field of health education are recommending that every teacher be trained so as to have an intelligent interest in the health of her pupils. If the teacher has a health consciousness she will be able to teach health to some extent no matter what subject she teaches. Ideas on health may be correlated with the teaching of mathematics, history, geography, science, music, drawing and other subjects. Although the correlation of health with various subjects is highly desirable effective health teaching requires in most cases a definite amount of time to be devoted to the subject in each grade.

Finally, if a school as a whole with its intricate machinery is to function in making the coming generation healthier there must be somebody to direct and coordinate the various health activities. Up to this time no training has been provided for health supervisors. This will soon be forthcoming. Until that time the person in a school system who is best qualified by experience, training and temperament should be chosen for this position.

Our discussion so far has concerned itself merely with physical health, but one may be free from physical defects, have no specific disease, be properly nourished and even pass a rigid physical examination without being healthy. A healthy individual may be described as one who is able to meet the problems of life with a fair degree of success and with a minimum of strain. He who is able to do that has that priceless boon, happiness, which every human being desires. *A perfect physical body and a long life are the ultimate goals of physical health, but the quality of life is as important if not more important than either of these two goals.*

What shall we say of that individual who lives long but is tortured by worry, fears, obsession and hallucinations, of those who become nervous, suffer nervous breakdowns and other functional nervous disturbances, of those who have failed in life because of unfortunate personality traits due to bad mental habits of meeting reality? Verily a child is a human being. His health is something more than a matter of adenoids, tonsils, infections, etc.

Mental hygiene experts agree that people are seldom born queer. They are usually queer, misfits in society, because of bad habits formed in childhood, mostly in the preschool period. Probably the most significant thing that a pupil carried from the home to the school is not knowledge but attitudes. The good teacher will be quick to encourage those that are wholesome and discourage those that do not make for mental balance and serenity.

Little mental hygiene can be taught to pupils directly. It relates itself to the work of every teacher no matter what she may teach. The teacher who teaches her pupils to adjust themselves to life situations honestly, courageously and successfully is teaching mental hygiene. She realizes that the human child is more important than the subject matter which she teaches. In some of our educational systems a new type of worker, the mental hygienist, has appeared. He helps pupils to overcome difficulties. In this way many a pupil who is on the verge of a nervous breakdown or delinquency may be saved to the school and society.

The field of mental hygiene is so broad that only a few general suggestions are possible here. Those who are interested in this new and expanding field should consult the publications issued by the Massachusetts Society of Mental Hygiene, 5 Joy St., Boston. The National Committee of Mental Hygiene, 370 Seventh Ave., New York also publishes an excellent magazine called "Mental Hygiene" and also issues a number of free pamphlets. Three of the best books on mental hygiene recently published are

Burnham: The Normal Mind, Appletons, N. Y.
Morgan: The Psychology of the Unadjusted School Child, Macmillan, N. Y.
Pratt: Your Mind and You, American Public Health Association.

The vision which the progressive school must keep before it is the whole child physically and mentally healthy. Health habits and attitudes are the goals. The process must be through training by intelligent and sympathetic teachers and administrators who think of the vital needs of children as human beings first and formal academic requirements last. Such a vision and such a program mean life, abounding life.

HEALTH EDUCATION AND THE PRACTICING PHYSICIAN.

By Merrill Champion, M.D., Director, Division of Hygiene, Massachusetts Department of Public Health.

It is usual to think of health education as something pertaining to schools or classes; at any rate, to official bodies. This way of looking at the matter has retarded progress greatly. Health education ought to belong primarily in the home, controlled by the parents under the guidance of the family physician.

The simplicity of health education has been a real obstacle to interest in it on the part of physicians. It seems to belong more to those general directions which physicians give in an offhand manner and without going into detail. "Don't eat too much, drink plenty of water and get enough exercise in the open air; and come back in a week if you are not feeling better." The physician is apt to expend his best efforts on technical medical papers read before medical societies. These, it goes without saying, are indispensable. Yet, after all, teaching one's clientele to eat the proper food and take the proper amount of exercise is more likely to influence permanently the well-being of the race.

A reproach often brought against physicians is that they are interested only in illness and not in positive health. This is, to a certain extent, undeniably true. The fault, however, is not entirely theirs. The public itself is to blame as well, since it is very hard to persuade the average individual to go to a doctor unless he is convinced that he has something really the matter with him.

Let us consider for a moment what the physician may reasonably hope to accomplish in the way of health education and the methods he must employ.

Methods of Approach.

The simplest method of approach, the one most closely allied to his accustomed procedures, is that of instruction in certain outstanding phases of preventive medicine. One thinks at once of the prevention of smallpox, typhoid fever and diphtheria. For this purpose we have well-tried and reliable agents available. Everyone should know of smallpox vaccine, typhoid and paratyphoid vaccine and toxin-antitoxin. Nevertheless the majority of persons have only the vaguest idea of them. It should be the physician's privilege and duty to make his families familiar with the importance of these agencies for the prevention of disease and it should be his function to administer them as well.

Many physicians are reluctant to urge too strongly the use of these means of prevention for fear that they may be accused of undue desire to get additional practice. Intelligent patients no longer feel this way about the matter, but to relieve the physician's dilemma the Massachusetts Department of Public Health has recently distributed the following card which speaks for itself:

(Card)

COMMONWEALTH OF MASSACHUSETTS.

Department of Public Health.

Preventive Medicine from Your Family Physician.

There are at least three common diseases that can be prevented. Any case of these diseases in your family means that available methods have not been used.

(1) Smallpox may be prevented through vaccination. Recently smallpox has been widely spread over the country and in some places it has been of the malignant type.

(2) Typhoid fever may be prevented through the periodic injection of typhoid vaccine. "Vacation" typhoid is mounting with the increased crowding of the country.

(3) Diphtheria can be prevented in all your family. Your private physician will explain how.

Periodic health examinations at all ages may save you from diseases of middle life due to "wear and tear," such as Bright's disease, hardening of the arteries, cancer and diabetes. These diseases are increasing and can be combated by corrected habits and early recognition.

Talk these matters over with your physician.

Urging the use of the agencies of prevention referred to above does not, however, exhaust the means of health education open to the practicing physician. I should like to refer briefly to (1) reading material in the office waiting room; (2) distribution of official pamphlets on communicable disease; (3) the use of prenatal letters; and (4) the employment of the public health nurse as the physician's representative in health education.

Use of Reading Material in Office.

The comic papers have always found on the doctor's waiting room table a perennial object for the shafts of their wit. Magazines of the vintage of the long ago and technical journals are most often what the patient, nervously waiting his turn to see the physician, is expected to find soothing. Such material hardly meets the need. On the other hand magazines like "Hygeia", published by the American Medical Association, convey health information in attractive guise and popular language. There are also interestingly written pamphlets obtainable from State and municipal health departments and from private health agencies. These may be kept in the waiting room for free distribution.

Control of Communicable Disease.

In caring for his cases of communicable disease the physician will find assistance in doing his duty by family and public, through the use of the various fliers issued by the health department. By giving these to the quarantined family the medical attendant can reinforce his verbal instructions and save himself much time and effort. At the same time he is educating the patient and his family to avoid, as far as possible, communicable disease another time.

Promotion of Health Habits in Mother and Child.

The greatest opportunity, probably, that the physician has of saving life is in the field of maternal and infant mortality. In no field is education in health more useful. Prenatal care, infant care: these depend largely on teaching the mother or prospective mother the simple elemental rules of health. Here again the family physician may obtain much assistance from official health agencies. For example, the Massachusetts Department of Public Health will send to any mother in the State a series of prenatal letters, one a month till her baby is born. She may then obtain monthly letters until her baby is two years old. These letters are not intended to take the place of the physician's advice but merely to supplement it. Diet slips for mother and baby; hints on breast-feeding, on dental hygiene and so forth are available, free, to the physician for the use of his patients.

The Public Health Nurse.

In health education, as in other phases of education, the personal touch is all important. The physician himself should be the major factor in this. He should not overlook, however, the possibilities of the public health nurse. Whether it be a case of prenatal care, of infant care, or of school hygiene, the trained public health nurse is able to get the physician's message over to the family as no one else can. Her chief function is that of a demonstrator and teacher. She does not consider her visit successful unless she leaves the family better equipped to help itself and with more health information than it possessed before.

The Health Examination as an Educational Factor.

In dealing with the educational possibilities open to the practitioner of medicine one should not overlook the periodic health examination. "Have a Health Examination on Your Birthday" is slowly becoming a popular slogan. It will become more popular as time goes on. While it has for one of its objects the detection of physical defects, its most important result ought to be the improvement of the health habits of the person examined. It gives the physician an opportunity to appraise the total physical and, perhaps, mental condition of the patient more quietly and thoroughly than at the time of illness and to outline for him a manner of life best suited to his needs. This represents in the highest degree the constructive side of medicine.

The Physician as a Family Health Officer.

We may safely conclude, then, that the family physician has an important field as a teacher of health. If he is to be in truth the "guide, philosopher and friend" of his families he must not wait till they are sick before tendering his advice. More and more will they ask and he give, constant oversight of their health habits. By so doing he will be rendering a service not only to the individual family but also to the whole community. The physician will then become in the truest sense of the word a health officer — a teacher of health education.

WHAT WILL NEWSPAPERS PRINT?

By Edward Elwell Whiting.

THERE are three distinct points of view from which possible newspaper material is regarded.

There is that of the one who writes the story or who offers it for publication.

There is that of the editor who handles the copy.

There is that of the reader to whom it is presented through the columns of the paper.

There is no profit or benefit to any one concerned in submitting to the newspaper copy which the editor will throw into the waste-basket. There is no profit or benefit in submitting copy which the editor will consent to print but which the public will not read. The single object of "publicity" material is to have it read by a considerable portion of the public. Simply obtaining publication is of no value unless the story is readable. An error into which publicity writers often fall is to suppose that they must produce a large amount of material. The value of publicity material is not in what is produced but what is printed, read and understood. The successful publicity director or publicity writer does not necessarily produce large amounts. Quality counts. Quantity does not.

There are three general classifications for publicity material designed to further the interests of the particular organization or department. They include straight news reports of what has happened, announcements of programs in prospect, and special feature stories.

Straight news reports of meetings and such occasions are usually best handled by the paper itself. If the city editor is told that a meeting is to be held, he will usually assign one of his reporters to cover it. Some newspapers accept news reports written by the secretary or other official of the organization. But these are rarely written in accord with the desire of the editor and usually are unsatisfactory.

City editors should be informed of coming events. Such material should be brief and clear. If it is desired to have the newspaper print an extended story concerning a program to be undertaken, a campaign should begin on the meetings in prospect. The suggestion that such a story is available and might be interesting may properly be made to the city editor. If material of this sort is offered for publication, that is, material expanding the mere announcements of future events, it should be brief and above all interesting.

Feature stories may be submitted to daily, Sunday, or weekly papers: and it is in these that propaganda purposes usually are furthered. It is difficult to prepare them satisfactorily.

The publicity writer should bear in mind these important facts: the subject he or she is handling appears to the writer to be of large importance. It rarely so appears to the editor. This is the fact because every editor is deluged with a flood of propaganda stories and requests for free space. The purposes behind these submitted stories may all be admirable. If, however, editors published all of this material submitted to them, there would be room for little else in the paper and nobody would read the paper. In the case of such a department as that of the Public Health, we must suppose that everybody working in or co-operating in that Department believes its objectives to be of vital importance. We may assume that that is correct. Two facts remain, however. One is that the editor himself is not vitally concerned with the Department of Public Health or with any other specific undertaking however admirable its purposes. Furthermore, the public, taking up its newspaper in the morning or evening, is not predisposed to read or to have any interest whatever in this work or any other similar work. This is not because of any lack of appreciation of good works or any hostility to benevolent or constructive social undertakings. It simply rests on the fact, which publicity writers sometimes ignore or forget, that the public as a mass is emphatically not a reform organization.

There is a great amount of material which such a department as that of the Public Health may and should offer for publication and which newspapers are willing and desire to print.

Items of straight news, of course, they always accept for their intrinsic value as news. This includes announcements of future undertakings. They travel on their own merits. They are not printed to please the department. Bear in mind that there are scores of departments and organizations, all of them active and all of them eager for publicity. A Department of Public Health is one of many.

In the field of special stories, by which it is designed through publicity avenues to stir public interest and appreciation in a department's work, lies the greatest room for ingenuity and skill in the production of publicity material. This material also travels on its own merits. The propaganda value must be subordinated and incidental. Good results in aligning public interest are achieved not by dogmatic assertion but by suggestion. This is true of all good propaganda. It applies to such a department as that of the State. It applies to the Red Cross, Soldiers' Relief, charitable undertakings, and so forth.

The usual newspaper editor has in his time handled an enormous amount of manuscript offered with the idea of obtaining free publicity for some good undertaking. He usually has become a little bit cynical regarding such copy. Experience has taught him that a large proportion of it is uninteresting and from the point of view of the newspaper and of the reader is valueless. It is not fair to ask a newspaper to fill its columns with uninteresting material simply to please an organization or a department, no matter how good that organization may be or how admirable its purposes.

Perhaps the best rule for a publicity writer is to ask himself or herself, before writing the article for submission to a newspaper, this question: "Would I read this article if I saw it in a newspaper and if I were not already interested in the subject?" If the answer is "No", do not write the article. If you have written it, throw it in the waste-basket and save the editor the trouble of doing so.

Newspaper editors are predisposed to be helpful. They are not predisposed to print dull material when it can be avoided.

It is a curious fact, often noted by weary editors, that when a newspaper writer of some years experience takes a position as publicity director, he or she immediately forgets everything connected with newspaper experience and proceeds to unload upon the unfortunate newspapers page after page of unprintable material.

Material offered for publication should be clear, concise, truthful, and interesting. When we use the word "truthful", we mean not only the avoidance of misrepresentation but truth in a positive way — that is, it should give a correct picture in all details. One may write the literal truth and still misrepresent the situation, as in the case of the editor who wrote an account of a hanging but so that it spared the feelings of the family. He wrote the story something like this:

"This man was one of the most prominent citizens of the county. His name was for some years on every one's lips. During the last year of his life no man in the district was more sought after. His picture had often appeared in the public press with accounts of his interesting and exciting career. He died under the most tragic and dramatic circumstances. On the day of his death he was the chief figure in a public gathering at the county seat. A large platform had been erected before one of the public buildings and on this he stood, the object of attention from thousands of people who had gathered there to see him. While he stood thus in the center of the platform, the boards beneath his feet suddenly collapsed. He died as a result of the fall."

This told the literal truth of what happened but it left a good deal unsaid.

In offering publicity for such a department as that of the Public Health, the use of technical phrases and words should be avoided. The object is to have the public understand what they are doing. There is an ancient story of a man who was arrested for beating up an acquaintance. The culprit had heretofore had a good reputation. Therefore the judge personally questioned him concerning the unfortunate affair.

"Why did you beat up this man?" he asked.

"I licked him because he called me something."

"What did he call you?"

"He called me a rhinoceros."

"Well, that is not a bad name. When did this alleged insult occur?"

"About two years ago at a church picnic."

"You mean to say that this man called you a rhinoceros two years ago and you licked him for it last night? How does it happen that after a lapse of two years you attacked him for calling you a rhinoceros?"

"Well, Judge, I aint never seen a rhinoceros till yesterday."

Publicity material should avoid affronting or offending the public. Newspaper readers do not constitute a medical clinic or a social welfare investigation bureau. They resent unpleasantness unless there is a vital reason for its presentation.

To sum up: publicity material has its value only insofar as it is read by newspaper readers.

Brief stories are more widely read and therefore are more effective than longer ones.

Be merciful to the editor. He likes to be helpful but he is much tried by continuous requests for free space.

THE PLANNING OF EXHIBITS.

By David A. Morey, Display Manager, S. S. Pierce Co., Instructor of Window Decorating, Boston University.

EXHIBITION or as it is more commonly called display, is and always has been one of the most forceful methods of attracting interested attention. In the history of all peoples, whether we start with the prehistoric cave men with their crude carvings and drawings, or with the story of the temptation in the Garden of Eden, or the pomp and glory of the royal courts now and long ago, we find that all have made use of the appeal of display. The open Oriental Markets, the war paint of the Indians, the vestments of the clergy, the uniforms used as a symbol of authority or position, all alike are forms of display.

Leonardo Da Vinci, one of the greatest artists that ever lived, said, "Thirst shall parch thy tongue, and thy body die through lack of sleep and sustenance, ere thou cans't describe with the written word, that which painting instantly sets forth to the eye." Display is even more forceful and often it combines painting with sculpture and architecture. Painting no matter how good is confined to two dimensions, length and breadth, while display uses the third dimension, depth, thereby increasing the possibilities of attraction.

There are three psychological principles of appeal which must be followed to attain a successful display. First it must attract attention, second it must hold the attention long enough to leave an impression, third it must leave a definite *favorable impression.* A display might attract attention and leave an impression but if that impression be not a definite favorable impression the exhibit does not fulfill its purpose.

Attention may be attracted in several different ways, among which color, light, motion, contour, contrast and human interest are primary factors. The spectacular displays embody all these principles. Other displays of lesser attraction appeal through the use of either one or more of these fundamentals.

To hold attention there must be some detail. This detail should be educational, entertaining or appealing. A display may sustain interest in one or more of these methods. The master displays are those which incorporate all three.

A definite favorable impression is the necessary reaction if the display is to be truly effective. There must be no distractions from the attraction and interest. A harmoniously composed arrangement of the various units of the exhibit adds to the impression and prevents detraction.

The first step in the planning of an exhibit is to have a definite idea of the purpose of the display: To whom you are going to appeal, women, men or children, the class of people, whether poor, rich or middle class, the intelligence and nationality. All these points should be considered. The difference in appeal should depend on the type you are trying to sell your idea or merchandise to. After deciding the general type of person you are going to appeal to, the next step is to consider which of the senses the direct appeal is to be made to, hearing, taste, sight, feeling or smelling.

Having a clear idea of the purpose of the exhibit, the type of person to appeal to, and the sense on which to base the appeal — we should concentrate on our choice of color, decoration and arrangement.

A knowledge of color, its theory and application as applied to exhibits is an essential. The primary colors are red, yellow, and blue; the secondary colors are orange, green and purple; the tertiary colors are plum, russet and olive. Some people are sensitive to color, and through this feeling are able to combine colors into harmonious schemes without conscious knowledge. For those who do not have this advantage, the following should be a sufficient guide to obtaining pleasing combinations. There are certain colors which are more forceful than others, these are called advancing colors. In this class we can place red, yellow and orange. The less forceful or receding colors are blue, green and purple. Pure colors advance more than those which are mixed, that is, primaries come forward more than secondaries and tertiaries. Besides color contrast there is a contrast of value. The term value when used in reference to color means its approach to light or dark. When a color approaches white it is called a tint as it inclines towards black it is called a shade. The value of a color depends on its adjoining color. Light colors are more striking when used against dark and vice versa. When any two primary colors are used to make a secondary, as red and yellow to make orange the primary color that is left becomes the complementary of the result of the combination, thus, blue is the complementary of orange, red is the complementary of green, and yellow is the complementary of purple. A color is at its highest intensity when used with its complementary. Any color when used with a pure gray will influence the gray by causing it to take on the complementary of the color used. A good color scheme is a combination of colors which look well together, when two or more colors are used together it is called a color scheme. There are three kinds of color schemes, monochromatic, analogous and complementary. Monochrome color schemes are those which use different values of the same color. They are always restful, although less interesting than a more complicated arrangement. Complementary schemes, using one primary and its complement are more striking and forceful, but less harmonious, because the colors are not related.

Analogous schemes are those which use colors which are related. These colors are found near each other on a color chart. Any of the colors made from two primaries used with the same primaries make an analogous color scheme, thus, yellow and blue used with green are an analogous scheme. This type of combination is more pleasing and harmonious than the others. It is well to know the influence of black and white when used with colors. White intensifies; black lowers the intensity. Finally shades do not combine well, tints make the more pleasing combinations, almost any number of very light tints when used as a color scheme give a harmonious effect.

Next comes our choice of decoration and arrangement. The same three fundamentals apply to both. These three principles are variety, repetition and unity. Each is of almost equal importance. These principles are found in everything we most admire, whether it be the art of music, painting, writing, or the art of living itself. Anything with variety alone must necessarily show confusion and lack of connection. Repetition alone, can be compared to a picture composed of all straight lines, it would be monotonous and displeasing. The same would result in a display in which all articles were the same size, shape and color. Unity the third principle is synonymous to composition or arrangement. Unity combines Variety and Repetition into a harmonious whole. It is the use of these three principles which make a fine building more attractive than a stone wall of equal proportion. They both might be made of the same amount of stone, but it is the arrangement of the stone, the projections, indentation and openings, the additions of glass and wood; in fact the striving for variety and the use of repetition both being related through unity, is that which makes one pile of stone an attractive building, and the other a plain unattractive wall.

The fault of ugliness is the lack of the use, or abuse of the use of one or more of the principles set forth in the previous chapter. If a display is monotonous it is because there it too much repetition; if confusing — too much variety; there must be unity between the two. To obtain this the display in making must be studied. If the articles to be displayed are all the same size, and shape and color — then the more reason to strive for variety. A motley gathering of many different articles requires repetition in the color scheme and arrangement. Unity consists chiefly in placing all articles so they have some definite relation to the center of the display space, and grading the articles according to importance. There can be no unity without balance; balance, composition, judgment and arrangement are all necessary in order to have unity. Summed up unity is having a place for everything and everything in its place. These principles if understood and followed must result in a pleasing and attractive display.

THE PREPARATION OF BOOKLETS, PAMPHLETS AND PRINTED REPORTS.

By Sherman Lewis Smith, Advertising Manager, Linscott Motor Co., Boston.

A PIECE of printed matter is either useful or useless. Unless it has a definite purpose it is an absolute waste, and even if it does have one the booklet, or folder, or whatever it is, may be so poorly prepared that its intent is largely defeated. Certain considerations should be entertained to make sure that the message will receive ready attention and stand a fair chance of accomplishing the desired result.

Typography.

One vital consideration, especially important because it is so easy for the well-intentioned person to go astray, is that of typography.

The primary function of typography is legibility. It is simply the means to an end; namely, to get itself read and understood by the largest possible number of people. While it should be pleasing to the eye, it should never be decorative. It should be so simple that it will deliver its message without attracting attention to itself or causing the eye to linger over unusual forms.

In general it is best to select a graceful, clear-cut type face such as every printer has, although some printers dislike to use it as being too "commonplace." A number of new faces have been introduced into the type catalogues in the past few years and some of them have had a great run; but the old "Roman" faces still remain as the most practical for general text composition.

Having selected your "body type," as it is called, you have next to choose the type for your headings, and here great care should be exercised to get distinction enough without making the headings overbalance the text or spoil the typographical harmony. If you use light-face type for your text — as you should — the headings may be set in bold-face type scarcely larger than the body matter and the sub-headings may be also in bold-face type one or two sizes smaller. A very pleasing effect is often obtained, however, by using all capital letters of a light-face type, the same as or similar to the text, in which case the headings should be somewhat larger than if bold-face type is employed. Italics can sometimes be used to make attractive headings, but the proper italic type face for this purpose must be very carefully selected.

All three of these type forms, bold-face, capitals and italics, are occasionally used to emphasize some particular word or phrase in the text, but the use of bold-face type in this way is perhaps the least to be desired. Italics are best so applied, saving the capitals for important, although not necessarily emphatic words. But do not use too much of this sort of emphasis; it is much more ridiculous to be over-emphatic than not to emphasize enough. If your words are well-chosen there should be little need to rely on the type to place their import where it belongs.

LAY-OUT.

A second important consideration in the form of your booklet is the lay-out, and the same general rules which govern typography obtain here as well. Simplicity is again the keynote. Elaborate panels, borders, and ornaments are no longer in vogue and it is best to avoid them altogether.

White space is much more effective than decorative material, and in this respect wide margins are of considerable importance. Generally speaking, the left-hand margin of a left-hand page and the right-hand margin of a right-hand page should each be the same width as the combined widths of the two margins at the inside or binding edge of the pages; the margin at the top of the page should be slightly narrower; and the bottom margin should be the widest of all. A fairly small type face with wide margins makes a much more readable page than larger type with narrow margins.

The width of the column is another consideration. If the page is fairly narrow and the type is not too small a single column offers the greatest legibility. The lines should never be so long, however, that the eye has difficulty in jumping accurately from the end of one to the beginning of the next in rapid reading. If you must have long lines, increase the size of the type so as to reduce the number of words. Two columns, or even more, may be used on wide pages, but usually a single column is more to be desired in a small page.

SIZE.

Do not decide definitely on the size of your booklet without first consulting your printer. By using a standard page size and a standard number of pages you can eliminate paper waste and save money in the cost of the job. Standard mailing envelopes can also be obtained for these sizes, while especially made envelopes are expensive.

PAPER.

A few things may be said with regard to the paper on which the job should be printed. An inexpensive antique book paper may be employed when no half-tone engravings are to be used, but if you want to reproduce photographs you should have a good grade of coated stock. White is the most universal color, but attractive India prints may be obtained in both antique and coated papers at a slight increase in cost. A machine-finish or a super-calendered paper is not expensive and is sometimes more desirable than the antique finish but is not a very satisfactory substitute for coated paper when half-tones are to be reproduced.

When the cover of the booklet is made from the same sheet of paper as the inside pages, the booklet is said to be "self-covered." This is the most economical way, and by the use of a little ornamentation on the outside, the appearance of a separate cover may be simulated. A separate cover made of an attractive paper stock is better, however, and this may be trimmed flush with the other pages or it may overhang them.

AUTHOR'S ALTERATIONS.

One of the items which introduce needless expense into any job of printing is that of author's alterations. These were formerly called "author's corrections," but that term conveyed the impression that perhaps the printers were at fault and accordingly the customer should not be called upon to assume the additional expense involved. As an actual matter of fact these are almost always due to the author's lack of foresight and the incomplete preparation of the job before it was sent out to be put into type. It costs money to set type and it costs money to change it, and the printer should not be called upon to stand the expense of work upon which he could not estimate at the start. Make up your mind that no changes can be made after the copy is given to the printer and you will save the money you might otherwise have to pay for this superfluous item.

The careful planning of your printing with a proper appreciation of the problems involved will make it far more effective and often less expensive, producing greater returns and sometimes at a material saving in cost.

DISTRIBUTING THE FINISHED PRODUCT.

Another aspect which should be considered when preparing printed matter, is that of securing proper distribution after it has been published. It is a custom often used by organizations seeking support, to send their printed matter to the same lists which are used by other similar organizations. The result of this is that a certain group of people receive a large number of appeals while others are neglected almost entirely. While some of those who contribute to help good causes are undoubtedly good prospects for other appeals, there are many who soon find that they have contributed all they feel they can in this way, and these are naturally not productive of the greatest results. The problem is to find new prospects who are favorably disposed and who have the means to give. These may often be found among the owners of automobiles of certain types, on the assumption that such owners are in fairly comfortable financial circumstances. Such names may be obtained through direct mail houses who make a specialty of compiling mailing lists. Other names may be obtained from the lists of members of churches, lodges, and clubs in the community, and there are other sources which will suggest themselves after a little thought.

A mailing list of these names should be carefully prepared and the printed matter should be distributed to them individually. A general house to house distribution is far less likely to produce results than is a distribution made to individual prospects.

The principles which apply to advertising and printing in the business world are every bit as vital in the work of social agencies. Because the workers are oftentimes unpaid is no valid excuse for inefficient or wasted effort, and it is for this reason that the above suggestions are submitted in the hope that they may prove to be of some assistance.

Note. — It should be borne in mind that, while certain rules for typography are laid down in this article, it is impossible to carry them out in a publication whose established style may be different in some respects. It is not intended that the typography used herein should be taken as an example of the rules which the article sets forth. — S. L. S.

POSTERS.

BY JOHN H. MCCARTHY, HEALTH INSTRUCTOR, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WE are living today in the greatest labor-saving, time-saving, and life-saving period in history. Invention after invention has developed rough ideas, dreams if you will, into concrete realities. The early generations labored to make devices that would improve working conditions, and because of their efforts and the efforts of the succeeding generations, those same devices are now laboring for us. Practically all of our modern conveniences are the result of necessity. The same is true of Art. It is to be found in embryo in the strange tattooed devices that cover the body of the savage, a necessity as a means of clan identification, individual identification, and a marking of rank. Then his tracing of ornaments as a means of property identification. Later on he develops an idea of symmetry, a taste for color, representation of animals, first in the round, afterwards in relief and by means of drawing. Finally he essays, though timidly, the imitation of the human figure and of vegetation. He now has developed his language, a language of pictures and symbols; and today we are reading the histories of early nations by means of these same picture languages. Later generations developed art to a very high degree but as it improved it became less a necessity and more a luxury. During recent years people have gradually discovered possibilities in art. One of these possibilities I am going to discuss now: poster work.

In health education the value of poster work cannot be over-estimated. Posters are a universal language, adaptable to any nationality, any age, any intellect, and a group of any size. I shall discuss poster-making in the schools. Little children love pictures and they like to scribble or draw. A child is like a little savage, delighting in drawing animals to the utter exclusion of his fellow kind. Develop in the child a good mental background through visual study and then add the necessary word description. If you describe a cow to 20 children who have never seen a cow or a picture of one, your description will develop 20 animals, varying in shape and size according to the imaginative powers of the individual child. But show them a picture of the cow and they will grasp your description immediately and fit it to the picture. A good illustration of this is the fact that we remember faces better than we remember names. Most of what we learn we learn through the eye. This is why poster work is so important in the education of the school child. This is why it is a necessity in the teaching of health to use posters.

Types of Posters.

Posters which may be made in school can be grouped in two classes. First, free-hand posters which the child makes completely by hand; and second, picture posters, or cut-out posters made by cutting out a picture and mounting it on a harmonious background. Of the two, freehand work is the better training for the child. It develops his imaginative powers, it requires more thought on the subject, thereby driving home the point more forcibly, it trains the hands to perform as the brain directs, it provides the child with a bigger problem of placing his drawing on the paper so that it will look well, and gives him an idea of proportion. When using the second method the child will take the first picture relating to the subject that he sees, regardless of size, and then mount it on the paper. He loses the opportunity of using his imagination by substituting another's idea for his own, and is deprived of the opportunity of training his hands and his eyes to make his drawing fit a certain area or space.

Principles of Poster Making.

1. *Order.*

One of the fundamental principles of good poster work and the one that is most sinned against is order. We see a poster with a heap of vegetables scattered over it. It is disorderly. The mind cannot concentrate on any one vegetable. And this disorder reacts on the mind. When you look at a futuristic painting, what happens? It gives you a dizzy feeling. When you enter a sickroom, and that room is very disorderly and untidy, you immediately put it in order. Why? Because of the mental effect on the patient. The poster reads, "Eat Vegetables." Why? What good are they? Ask a child why he eats them and he will say, "Because they are good for me." He does not know why. Now, if those vegetables had been taken one at a time or two at a time and made into a poster with a word or two to explain why the child should eat them, by the time he had finished the poster he would know just why he should eat a certain vegetable and why it was good for him. The point would be driven home.

2. *Printing.*

Be sure, also, to state your point in as few words as possible. Try to express it in two words and better yet in one word. Make the lettering very simple and very plain.

3. *Margins.*

The next factor is margins. Why do we need margins? What good are they? If we did not have margins on posters, books, magazines, photographs, etc., we should have to handle the illustration of printed matter with our hands. The use of the margin allows us to keep the subject matter clean. Margins frame the subject and keep it from scattering. They concentrate it and focus the attention on the subject. But there is a more important reason for the use of margins. Ruskin explained this reason in a masterly way. He said, "This picture has something to say to you. In order that you may hear it, it is surrounded by a little silence." A wonderful statement. You see a traffic policeman at night standing in a circle of light. The light is not on his feet but surrounds his whole figure. He stands out clearly and distinctly because he is surrounded by a margin of silence. The silence is restful. It has the same effect as a pause in a spoken word. The pause between sentences is a silence, a margin, and makes the sentences stand out. Leave out the pause and you know what happens. Publishers realize this and the higher priced the edition, the better the margin.

4. *Balance.*

We have now discussed three fundamentals. Order, printing, and margins. The next factor is balance. Balance is a very important fundamental in good poster making. If we draw a horizontal line we get balance, and it is restful to the eye. If we draw a vertical line we get balance, and it is restful. But if we draw a diagonal line we do not have balance and it makes us uneasy. It is not restful. A rolling ship causes physical unrest because of the lack of balance. Unbalanced posters cause a mental unrest. A poster should have equal or balanced margins at the top and sides, and a deeper or wider margin at the bottom.

The printing should balance on a vertical line drawn through the center of the poster, and the center of the illustration should be a little above the center of the poster. Teach balance to the child in poster construction and you will be teaching him balance of mind. The human mind needs rest. Balance is the law of design that results in rest.

5. *Simplicity.*

The next fundamental is simplicity. Make the poster simple and direct. Leave out all unnecessary details, and strive to make the poster in outline or silhouette. Put a silence of soft tone around the picture so that the picture can talk to you. Make the treatment a decorative one rather than a photographic one. A photographic poster is generally too soft. Nothing is so attractive as a simple study executed in simple relief.

6. *Positive Appeal.*

A poster must have carrying power to attract a person's attention. Then it must interest that person and finally it must drive its message home in a short snappy statement. If you follow these simple fundamentals the poster will meet all of these requirements. There is one very important suggestion which I have purposely left to the last. When teaching health lessons to the school child through the medium of poster work be sure to emphasize the positive or optimistic side rather than the negative side. Teach the children to think of health in terms of beauty, joy and happiness.

HEALTH DAYS.

By Ruth H. Foss, B.S., Assistant in Health Education, Massachusetts Department of Public Health.

Coming — Health Show — Wednesday, the 11th
Town Hall — afternoon at 2, evening at 8
Brother Brownie — Health Movies
Interesting Speakers

SO reads a poster in every store window and on a tree at every cross-road in the surrounding district for about two weeks before the scheduled appearance of the Health Show Troupe.

This is just a small part of the advance publicity. In the beginning when the school nurse first began to wonder what new thing she could do in Health teaching she sent for a member of the State Department of Public Health to talk the matter over with her.

Together they decided that a Health Show would be the best method of emphasizing to the children the Health Habits which they had been learning all the year. The Health Show would have the additional advantage of bringing home these same truths to the parents and would give them the opportunity of hearing the message of the District Health Officer.

The next step was to get the permission of the local Board of Health and the school authorities which was readily granted.

The Superintendent of Schools is most co-operative as a rule and arranges to have school dismissed for the afternoon or perhaps we should say arranges to have the entire school meet in one central place which is usually the Town Hall or the High School. Transportation for the children is also taken care of by the Superintendent.

The School Nurse appoints a committee of the school teachers and very soon elaborate plans are under way for the giving of a Health Play, a Health Poster Contest, and an exhibit of health material used in the class room such as stories, essays, drawings, model meals, prepared by the cooking classes, and manual training models.

An outside committee made up of representatives of the different organizations and churches in the town is appointed and in this way the town is thoroughly canvassed as to publicity for the evening meeting.

The State Department of Public Health will write newspaper notices and send them to the local papers if such is desired. They also have slides which can be used by the different moving picture houses. On the final Sunday before the Health Day an announcement is given from the pulpit of every church. In this way every possible publicity approach is used.

Then dawns the morning of the Health Show. Either by express or auto truck the exhibit material of the State Health Department arrives at the hall. With it there is either one or two workers. In no time the hall is transformed to a fairy health land, for such was the character of the exhibit this past year.

Many times the assistance and co-operation of the district Tuberculosis League or Health Association is fortunately obtained and their workers are also there with their exhibit, sometimes even taking whole charge of the details of the program.

The Health Brownie then arrives and in a twinkling the Punch and Judy Theatre is assembled and long before two o'clock everything is in readiness. The children soon begin to file into the hall and as a rule the question is where to put them all. The kiddies are good natured and the smaller ones double up and are thoroughly contented to sit two in a seat.

The program goes off without a hitch. The opening number is the Health Play and such fun it is to watch Carrie Carrot, Benny Bean and Mrs. Milk down the advances of the naughty Tea and Coffee twins, that, before we realize, we have learned a lot about what foods are good for us and what we should leave alone.

The next is a movie. Thrills! We see two boys both wanting the same job and learn that the one who has brushed his teeth every day and has eaten proper food is much the stronger of the two and, of course, gets the job. But there is a happy ending and our other boy puts in a few months of diligent service to Dame Health and he too is given a job in the same office with his chum. This picture makes a very good introduction for the State Oral Hygienist and she now comes forward and teaches every one the tooth brush drill.

Perhaps a Health Song is next and pretty soon we are ready for the Brownie. With a whoop he races out onto the stage and there follows forty-five minutes of learning our Health Habit rules all over again, but, of course, without realizing that that is what we are doing. You see Mr. Punch has brought his theatre and he gives us the story of how Jimmie learned to play the game. There is also Jackie, who, with Jimmie, lived with the old witch and peddled naughty germs to good children. Jimmie with the Brownie's help was the first to learn the rules. And there are two fights and we mustn't forget the little dog, Peter. But then I shall not tell you any more because we want you all to see the show.

At the close Brother Brownie teaches a delightful song "Clean up ye little children," and we have another movie and it is time to go home. The last surprise of the afternoon is a Health Fun book which this year contained four cross-word puzzles pertaining to health.

It seems that the children have learned so much during the afternoon that their teachers will never run out of material to talk about and to write about in class rooms.

In the evening the parents hold a rather informal meeting. The District Health Officer has a lot of problems which he is anxious to talk over with the mothers and fathers. Particularly is he anxious to have them understand what the Schick Test is and how their children can be made immune to that dreaded disease, diphtheria. Then there is also the problem of oral hygiene which is carefully explained with the help of a movie.

At the same meeting the school nurse, the Chairman of the Board of Health, or the Superintendent of Schools has a good opportunity to say a few words, if the occasion demands.

After the meeting the parents have a few minutes to study the exhibit, to ask questions, and to get whatever literature interests them.

The next day the announcing posters are removed from the store windows and from the trees at the cross roads, but the good that the meeting has done has just commenced to grow. In any number of towns we have records to prove that it was the Health Show which really influenced the community to adopt a regular health program, to put on a full time school nurse, or, to establish a dental clinic.

HERE IN MASSACHUSETTS.

By Frances Klein, S.B., Assistant Editor, Massachusetts Department of Public Health.

THIS number of the Commonhealth tells all about ideal systems of health education — who should carry them on, what methods are forceful, and the technique of preparing health education material. In summing up, I shall outline briefly what is being done here in Massachusetts.

The Massachusetts Department of Public Health is essentially an educational body — its staff does not treat disease; it disseminates health information. This has been the function of the Department ever since it was created as a State Board of Health in 1869. Its powers and duties were described by law, in part, to "take cognizance of the interest of health and life among the citizens of the Commonwealth, make sanitary investigations and inquiries relative to the causes of disease, and especially of epidemics, the sources of mortality and the effects of localities, employments, conditions and circumstances on the public health, . . . and shall gather such information relating thereto as it considers proper for diffusion among the people."

The Department, therefore, does not depend on police power; its measures are offered to the public as suggestions only. It can readily be seen, then, how much depends on personal contact with all types of citizens and organizations in the local community. This brings us to a discussion of personnel.

There is nobody in the Department labelled "Health Education Expert," though there is a group in the Division of Hygiene whose work is limited to health education. Health education however, is an expression, in the larger sense, of all the work which the Department is doing. It is a general term which may rightfully cover any activity that directly or indirectly, immediately or in the future, brings home to the individual the facts and the desire to promote personal and community health. The personnel necessary for this job, — or collection of jobs — is varied. It includes physicians, nurses, sanitary engineers, nutrition workers, a dental hygienist, laboratory workers, a statistician, an artist, and persons qualified to prepare press notices, exhibits, and other publicity material.

Roughly the health education activities can be grouped into three general classes.

1. Information and assistance to professional people — physicians, nurses and teachers.
2. Information and assistance to community organizations.
3. Information given directly to the lay public.

A summary of health education projects will make this classification more clear.

1. Projects for the advantage of the professional people.

(*a*) Personal conferences offering assistance to individual physicians and nurses, (*b*) Group conferences, held in the normal schools all over the State for the school groups (physicians, nurses, teachers, and normal school students).

The Massachusetts Department of Public Health has been holding these conferences for the past three years, making a tour of the normal schools in order to reach all parts of the State. Each conference was planned for a whole day, the formal program closing early enough to allow for discussion. For each series of conferences one or two central subjects were chosen, all of the talks being devoted to some phase of these subjects. For example, one year nutrition was selected for the morning topic, and dental hygiene for the afternoon; another time mental hygiene and health education; and another school sanitation. An exhibit added to the interest. The discussion has been carried out in the form of round tables (one for school physicians and one for school nurses) rather than from the floor, as the round table creates an atmosphere more suited for the expression of opinion. The Department has endeavored to obtain prominent authorities as speakers in order to make these conferences worth while.

Another form of group conference has been the maternal and infant hygiene study courses held in central locations all over the State for physicians and nurses in maternal and infant work. Two years ago the course was planned for three days, a week apart. The most modern methods in prenatal work, obstetrics, and infant care have been discussed by well-known specialists. This last year the course was a one-day conference, with a play illustrating methods in prenatal care introduced to add human interest.

(*c*) Courses for Nurses. A series of lectures on nutrition, given at regular intervals in central localities of the State.

Courses on school nursing and school health problems for teachers given at the summer session of one of the State Normal Schools.

This has been a worth-while enterprise. Begun several years ago as an experiment by the summer school itself with the advisory assistance of the Department of Public Health it was gradually developed and is now handled jointly by the Department of Education and the Department of Public Health. The course originally was planned for school nurses alone; it now has expanded into courses for both nurses and teachers.

(*d*) Talks given largely by request of medical societies, nursing organizations and school departments.

(*e*) Circular letters, telling other health workers what the Department of Health can offer in the way of literature for distribution to patients and to school children, vaccines and sera for preventive inoculations, and information which the Department has compiled from research work and a study of source material.

2. The work done with the community organizations is vital. The women's and men's clubs, parent-teacher associations, churches, scouts and granges are eager to help in health education work, yet lack the technical information necessary. These organizations reach the people. They *are* the people. But in addition, being united in purpose, they have power to carry out projects helpful to individual and community health. In Massachusetts the organizations have come to the Department again and again asking for advice as to the best way to start a dental clinic, or a baby conference, or a Health Day. We can give them the technical information needed, and leave it to them to carry on. This makes for real progress, because it puts the local community on its own responsibility. A State Department can give demonstration conferences, but these are nearly valueless without the interest of local organizations which leads them to establish such conferences on a permanent basis. A Committee on Community Health Activities, made up of representatives from the various state-wide organizations interested in health, meets at intervals with the Department to discuss possibilities of special health projects affecting various local communities.

3. Health education direct to the lay public is not primarily the way the State can best expend its effort. The pamphlets, posters, slides and exhibits which are prepared here are intended most of all to be distributed through local individuals and organizations — the physician from his office, the nurse on her daily round, the teacher in the schools. There are certain apparent exceptions:

(1) *Demonstration Conferences.* — A large number of baby and preschool con-

ferences have been held over all the State during the past year with the idea of getting permanent conferences started, to be operated locally. In all cases any patient in need of treatment is referred to the family physician.

(2) *Health Days*, run by the Department with the aid of other health organizations. An article on the procedure for health days appears in this issue of the Commonhealth.

(3) *Campaigns.* — Where there is an urgent need for particular health measures or educational effort all over the State, the Department plans a campaign to attack the problem from all sides. In a case of this kind the work is carried on primarily, again, through local groups and organizations. However, the Department also endeavors to reach the public directly through store window exhibits, moving picture slides, literature, lectures, radio, newspaper articles. Examples of this are breast-feeding campaigns, where boards of health, visiting nurse associations, and other key people are reached and at the same time the public is approached directly.

(4) *Radio and newspaper work*, aimed always directly at the lay public, because there is no opportunity to sift out the audience. Articles are released weekly to all papers in the State, and more often when occasion demands. Series of radio talks have been given from several broadcasting stations.

In conclusion it may be said that the Department tries to use in selling health all the legitimate modern methods found useful in advertising anything else that the public needs.

SOME BABY'S MOTHER.

By Lela M. Cheney, R.N., Assistant in Hygiene, Massachusetts Department of Public Health.

"GOOD morning, Mrs. Kaminsky. How are you this morning — and that young daughter of yours? I was glad you brought her to the baby conference last week."

As the nurse entered the house, she was met with a stolid attitude of polite tolerance.

"Good morning, nurse." Then as the mother turned again to her task of washing baby's clothes at the kitchen sink, she added, "Mary? Oh, she's all right."

The nurse looked in the direction indicated by a nod. What she saw was a rather fat, but pale, flabby two-year old lying on a quilt in a dark corner of the room asleep. A nipple in her mouth and a half empty nursing bottle on the floor nearby told their tale. At that moment an older child, clean except for the evidence of recent play out of doors, rushed in clamoring for something to eat. It was slightly after noon, but there was no evidence of dinner in preparation. The mother, with a sigh of weariness — or was it of boredom with this endless monotony of living — turned from her washing, wiped her hands on her apron, broke off a hunk of bread from a loaf lying on the table, and handed it to the child.

It all happened in a minute. The nurse, accustomed as she was to observe situations closely, drew several wise conclusions: a mother — not old in years but aging with the deadening grind of endless routine; a baby, above average weight according to the scales at the baby conference, but nevertheless mal-nourished, lacking at least three of the essentials of healthy childhood — sunlight, proper diet, parental control; a three — or four year old, her mother called her Annie, wise in the wisdom of the world — and only a baby! Under her neat blue uniform the heart of the nurse ached with a great desire to help lift this family from the sordidness of life as they lived it, to teach them the essentials of health, and to show them some of the beauty which she herself had found in life. How could she do it? It certainly appeared as hopeless as any situation she had met; but the very hopelessness of it was a challenge.

As the mother turned again to her washing, disregarding the presence of the nurse, she stopped for a moment to look at the sleeping child, then gently to cover her with a light blanket that was at hand. Ah! there it was! The quick intuition of the nurse caught it. Mother love, of course, even in this apparently indifferent woman!

"Mary is having a nice nap, isn't she?" smiled the nurse.

Mrs. Kaminsky looked up in surprise. Yes, surely there was gratitude in that look too. Those district nurses — well, Mrs. Kaminsky supposed they just wanted to find fault with the way people did things. She had never known one herself. In fact, she didn't want to; but *this* nurse had a nice smile and a friendly way of speaking. Perhaps she wasn't so bad after all.

"Yes, Mary's gone to sleep at last. She's got all tired out crying most all night. I don't know what ails her. My man got mad, because he has to work hard all day — he works down to the wharf unloading ships, you know — and he needs his rest. Mary went to bed when we did, but she only slept an hour when she woke up again. There was an east wind, but she couldn't have been cold because she sleeps with us and the room was warm. I guess maybe she was hungry, for she nursed half the night. I don't see what else could be the matter with her." This last with an air of finality which did not ask for enlightenment. She heaved a sigh, then opened the kitchen window an inch, in deference to what she had heard of 'those nurses,' lifted the pan of clothes from the sink and started for the yard to hang them up.

Miss Graham thought quickly. Of course the baby didn't sleep well. Everything was wrong. Couldn't this mother see it? No, she didn't know — she had never been taught. There was so much she needed to be taught. Miss Graham shot a quick comprehending glance at the impassive face as Mrs. Kaminsky passed through the door. Not yet. This was not the time to begin, though the nurse was bursting with the desire to pass on the information so sorely needed. Instead, she followed the mother into the yard. She must win her confidence first of all. Any advice given now would be construed as criticism. That would eliminate any possibility of future helpfulness. She must make haste slowly if she were to win out in the end. "You must be tired after being awake most of the night with Mary. Won't you let me help you hang out the clothes?"

Mrs. Kaminsky looked up curiously at the question. She didn't think district nurses ever hung out folks' washing. But yes, — already the nurse had Mary's dress in her hand.

"What a pretty dress! And it's hand made. Such dainty stitches! Did you make it yourself, Mrs. Kaminsky?"

"I always make their clothes," trying to conceal her pleasure over the praise she noted in the nurse's voice. This nurse *was* rather nice. She wondered vaguely if they were always like that, friendly and not 'stuck-up.' As if further explanation were needed, she added,

"It's cheaper to do the sewing myself. Some days my man don't have much work. It don't take long for $25 to go with seven mouths to feed. He" — referring to her "man" as if in answer to an unspoken question — "has three boys by his first wife. Joe, named after his father, he's nine. Then Stanislaw's next; he's seven, and Stephie, the little one, is six. They're off to a vacation camp now. The teacher said they needed to fatten up, so she had them go to Lakeside for two weeks. I'm afraid they'll be homesick."

"Oh, I'm glad they could go to Lakeside. It is a delightful place. I know the matron of the camp very well. She will be a real mother to the boys."

By this time the clothes were all on the line. With an air of weariness, Mrs. Kaminsky dropped down on the doorstep. Noting a faint gleam of interest in her heretofore expressionless face, Miss Graham sat down beside her, vividly describing life at the camp where the boys had gone. The gleam of interest gradually turned to an expression of real friendliness, especially when the nurse promised to write that very night to her friend the matron to find out how the boys were getting on. Surely under this apparent apathy the maternal instinct was stronger than the casual observer would have believed possible. Even the nurse, with her steadfast belief that always somewhere (even though concealed by the heaviest of masks) this instinct was present, and could be revealed and fanned into a flame if one were only wise enough, watched the change — and wondered. These boys were only step-children; and yet this woman, whom a stranger would have thought incapable of any refining emotion, was showing real concern over their happiness. One would have expected, rather, some expression of relief at their absence, and the consequent lightening of drudgery for a time.

It was while Miss Graham was describing the children at camp playing out of doors with as few clothes as possible in order that they might receive the full value of the sunlight, that Mrs. Kaminsky gave evidence of an unexpected bit of intelligence.

"Do you suppose it would hurt Mary to put her out in the sun like that? I don't think she's quite as well as she might be. Seems as if she's kind of pale — and she's so fussy. You know I don't have time to take her out like I want to. But perhaps I could let her sleep out of doors in her carriage if that would help. We have a good yard here; and do you think she could play over there on the grass bare-foot if my man put up a wire fence so she couldn't get out in the street and cut her feet? If you think it would be all right . . ." This indifferent woman was growing almost enthusiastic. Would wonders ever cease? She paused in the middle of her sentence, as if startled at her own boldness.

"Why yes, Mrs. Kaminsky: that's just the thing. I'm sure it would help put some color in Mary's cheeks. As you say, she is a bit pale. And it would not be very much trouble for your husband to put up a wire fence, would it? That certainly is a good idea! Then she will be perfectly safe especially if she takes her nap outside, too. Did you say she is fussy?"

"Terrible! I don't know what I'll ever do with her. She don't sleep good at night at all; and she don't eat good. She takes a little milk from the bottle, but she won't drink from a cup. She'll take coffee from a cup but I don't give it to her. I'm all in; she drags on me all night, mostly: but this is her second summer, you know, so I can't take it away from her. What do you suppose makes her act like that?" This time the question was asked as if an answer were expected.

"Well, if you get her out of doors as you suggested, that will help a lot; but the most important thing is to wean her and put her on the right diet."

"But — her second summer — won't she be sick?"

"Not if she has the right care, which I am sure you will give her."

There was no untruth in this statement, for by this time the nurse *was* sure. Since the fence of reserve had been broken down by friendliness (for it was reserve and not indifference) there had been a note of eager anxiety in the voice of this mother. The nurse noticed this with relief. For a short time her theories had been in danger of collapse. Now that there had been revealed to her again the streaks of gold in the rough mineral, she rejoiced in it. Ignorance, not carelessness, was the underlying cause of the situation; and ignorance, more easily than carelessness, might be dealt its death blow. "When the desire cometh . . ." she quoted mentally, then continued aloud:

"It will not make Mary sick to wean her now. In fact, she is more apt to be sick if you do not wean her. You see mother's milk is the best food for a young baby; but when he gets to be ten or twelve months old, he needs more than the mother can give. The quality of the milk is usually not right for the baby by that time. It lacks iron, for one thing. So we have to give cow's milk and solid foods that can be easily digested. A child that continues to nurse as long as Mary has or to take milk from a bottle never has a real healthy appetite for the kind of food she needs to make her strong and healthy. You read English, do you not?"

Receiving an affirmative reply, Miss Graham took from her bag a list of foods for a two year old child.

"See, I will leave this for you. It tells what kind of food will be good for Mary. But first you must wean her. You will do that, won't you?"

"If you say it is best, I will," hesitantly. "You are sure it won't make her sick? I guess I'll have an awful time doing it, she'll cry so. Anyway, I'll try it if you want me to. Perhaps I'll feel better then, too, she's so big."

"If you let her sleep in a separate bed, it will be much easier to wean her. She'll sleep better, too, after she gets used to it. She may be fussy for a few nights; but you say she is fussy anyway, so a few nights more won't make much difference. Try putting her to bed earlier, at half past six. While she is growing she needs a great deal of sleep. She ought to sleep at least twelve hours at night, as well as have a long nap each day. But now let's read over this diet list together. Then you can hang it up on the kitchen wall where you can see it easily."

Together they read the printed list of foods, Miss Graham making explanations where necessary and emphasizing the importance of meals at regular times with nothing between meals, the mother asking now and then a question and drinking in the information as if she had been thirsting for just such knowledge all her mother-life, which, of course, she had not consciously. While they were still talking, Mary herself appeared at the door, blinking and pouting, just wakened from her nap in the dark corner. Seeing a stranger, she began to cry lustily. Taking the child in her arms, rocking her vigorously back and forth, Mrs. Kaminsky tried to quiet her.

"There, there, Mary! Hush up! This lady won't hurt you. She's not the one that takes naughty girls in her bag. She's the nice nurse that's come to see you. Keep quiet and I'll get you some candy by and by. This nurse likes little girls don't you nurse?"

Finally the child stopped crying, although she steadily refused to leave her mother and go to Miss Graham. Miss Graham made mental notes to teach on some future visit the danger of arousing fear, and the poor policy of offering bribes of candy, even if they are not fulfilled. But she had already said enough for one day. She did not want to make so many new suggestions that Mrs. Kaminsky would be confused and not remember any of them. There were still many things to teach this little mother; today's visit was but a scratch on the surface of all that remained. Anyway, a beginning had been made. The contact was good. Confidence had been established, and the way paved for future visits. Surely that was more than she had expected to accomplish when she first entered the house and received so cool a reception.

"Good-bye nurse. I'm glad you were going by and stopped in to see me! Yes, I'll come to the baby clinic next week and let you know if I get Mary weaned. You will come see me again soon, won't you? I don't know anybody, and it's nice to have some one to talk to sometimes. Anyway, come back to tell me about the boys, and see the yard my man is going to fix for Mary so she can play out in the sunshine."

THE COMMONHEALTH.

Quarterly Bulletin of the Massachusetts Department of Public Health

Sent Free to Any Citizen of the State.

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Vaccination. — As the time arrives for the re-opening of schools the question of smallpox vaccination comes to the front. It should not be forgotten that there are two factors involved: (1) that of the public health; and (2) that of obedience to law.

With respect to the first factor it ought to be necessary to say very little. There is now no question in the minds of informed, unprejudiced persons as to the value of vaccination against smallpox. There is more need than ever for this type of protection since the number of cases of virulent smallpox throughout the country is giving health officers everywhere much concern.

The second factor — that of obedience to law — ought to be even more self-evident. Yet it apparently is not. The law requires a certificate of vaccination of all children entering school, with certain definite exceptions. No authority is conferred by statute on school committees or school superintendents or school physicians to change in any way these statutory requirements or to confer additional exemptions. The particular beliefs of these officials regarding vaccination have nothing whatever to do with the case. School officials above all others, entrusted as they are with so much of the responsibility for making good citizens out of our children, ought to be meticulously careful to set a good example in obedience to law.

Why can we not have the school vaccination law observed 100% this year and every year?

Does Diphtheria Prevention Prevent Diphtheria? — In fighting prairie fires one effective method is to burn over a wide zone in advance of the fire. When the flames reach this there is no longer any fuel and the fire stops. Similarly in communicable disease control if an immune or non-susceptible population can be created, when the disease appears in the community it will soon burn itself out since there are few persons who can have the disease and thus keep it alive. This is the objective back of vaccination against smallpox and inoculations against typhoid. Although it is humanly impossible to get one hundred per cent of a population immunized there have been repeated instances where a sufficiently complete immune population has been artificially created to bring these two diseases abruptly under control, or better never to let them get a foothold at all. In the last few years much has been heard about diphtheria prevention. It is claimed that we know enough about this disease to make it as rare as leprosy. But the practical application of our knowledge is the difficult feature.

The Schick Test shows whether or not a person can have the disease, and if he can he may be protected by inoculations with a substance unromantically called toxin-antitoxin. Does experience with these procedures bear out these claims? Many communities in Massachusetts have of late years been diligent in giving this protection to school children, although the pre-school children, in whom the greatest number of deaths from diphtheria occur, are still very generally neglected. Has this service in the schools given results? Last year there were fewer cases of diphtheria in Massachusetts than in any year since 1916. So far this year the record is even better. But in any communicable disease it is extremely dangerous to claim that a mere variation in the number of cases is due to a given procedure since there are so many factors, some of which are unknown, over which we have no control.

Let us look a little further. Wherever diphtheria occurs the highest number of cases, in relation to the number exposed, is among school children, the next highest among pre-school children, and the lowest among adults. This is true irrespective of any fluctuations in the number of cases. Should this *constant ratio* be altered we might well feel that any innovation in diphtheria control had had a profound effect on the spread of the disease. In Auburn, New York, they have been actively pushing diphtheria prevention in the city and its surroundings for some years, until now in addition to a marked reduction in the total number of cases of diphtheria in these communities, the distribution of the cases among the different age groups is completely reversed, *i.e.*, the greatest number occur among adults and the least among the school children. A similar result obtained last year in Northampton where intensive immunization of school children took place in the winter of 1921–22. We are studying other communities for the presence of this phenomenon. In other words, where such a fundamental characteristic of a disease as age distribution is altered following the use of toxin-antitoxin we can say with assurance that diphtheria prevention does prevent diphtheria. The moral to be drawn is that this procedure is an effective preventive and must not be made the exclusive prerogative of the school child but must be extended to the pre-school child.

Summer School Courses. — Last year the State Departments of Education and Public Health co-operated in a course for school nurses given during the summer session of the State Normal School at Hyannis. It was felt by both departments that this course was highly successful. This year a similar course is being given for school nurses and a new one for teachers on school health problems. A report of the summer's work will appear in a later issue of the Commonhealth.

American Public Health Association. — The annual meeting of the American Public Health Association will take place this year in St. Louis the week of October 19th. It is time to begin planning to attend. All readers of the Commonhealth are interested in some or all phases of public health work and all can get inspiration for the coming year by attending such a convention and talking over successes and failures with others in the same line of activity.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of April, May and June 1925, samples were collected in 167 cities and towns.

There were 2,065 samples of milk examined, of which 830 were below standard, 43 samples had the cream removed, 42 samples contained added water, and 1 sample contained dirt.

There were 509 samples of food examined, of which 89 were adulterated. These consisted of 7 samples of butter, 1 sample of which was low in fat, and 6 samples were rancid; 2 samples of canned shrimp which were decomposed; 43 samples of dried fruits which contained sulphur dioxide or a compound thereof, not properly labeled; 3 samples of maple sugar adulterated with cane sugar other than maple; 2 samples of sausage, 1 of which contained starch in excess of 2 per cent, and 1 sample contained compound of sulphur dioxide; 6 samples of olive oil, all of which contained cottonseed oil; 22 samples of soft drinks which contained saccharine; 4 samples of vinegar which were low in acid.

There were 51 samples of drugs examined, of which 7 were adulterated. These consisted of 4 samples of lime water, 2 samples of spirit of nitrous ether, and 1 sample of essence of peppermint, all of which were deficient in the active ingredient.

The police departments submitted 2,445 samples of liquor for examination, 2,408 of which were above 0.5% in alcohol. The police departments also submitted 26 samples of poisons for examination, 11 of which were morphine, 2 medicine, 4 opium, 1 cocaine, and 8 samples were examined for poison with negative results.

There were 3 samples of coal examined, 1 sample conforming to the law, and 2 samples contained an unreasonable amount of impurities.

There were 89 hearings held, and 1 warning issued, pertaining to violations of the Food and Drug laws.

There were 50 convictions for violations of the law, $1,110 in fines being imposed.

William Bailey, John Lecraw, and Christian J. Relihan, of Marblehead; Converse Square Lunch Company of Malden; Antone Lemos of Acushnet; Agostino Visocchi of Sudbury; Owen L. Connor, Patrick J. McNiff, and Arakel Thomasian, of Worcester; Charles L. Gray of Orange; Waldorf System Incorporated, Earl A. Lewis, and Serapin J. Pontes, of Fall River; Norman A. Gates of Danvers; Joseph A. Abdallah and William Jordan of Tyngsboro; Christi Connas of Chicopee; Walter S. Robak of Chicopee Falls; Sieed Corey of Holliston; Charles Sinkewicz of Dunstable; Fern H. Lee of Millis; John Martin of South Somerset; Angelo

Indessi, Pasquale Deni, Angelo Selva, Nicholas Girdis, and Peter Massaferra, 2 cases, all of Springfield; Harry Coussoule of Newburyport; and Joseph Pikul of Dudley, were all convicted for violations of the milk laws. Agostino Visocchi of Sudbury appealed his case.

Whiting Milk Companies, 3 cases, of Charlestown; Joseph Sears and Thomas Wilson of Rockport; Hyman Winer, Herman Robinson, and Ermmano Cesati of Haverhill; Donat Morin of New Bedford; Louis Gregor and John Schab of Westfield; Ernest J. Derouin of Springfield; F. Diehl & Son Incorporated of Wellesley; Hamid Esmil and Efstathio Christoupolos of Lowell; and Joseph Tapor, Joseph Bauser, and Kapple Bloome, 2 cases, of Holyoke, were all convicted for violations of the food laws.

James Palozzi of Taunton was convicted for violation of the slaughtering laws.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 6 samples, by John Martin of South Somerset; 4 samples each, by Sieed Corey of Holliston, and Charles Sinkewicz of Groton; 2 samples by Jacob Gexler of Gill; and 1 sample, by Clarence E. Kent of Marshfield.

Four samples of milk which had the cream removed were produced by John Katowski of West Brookfield.

One sample of butter which was low in fat was obtained from Whiting Milk Companies, Charlestown.

Soft drinks which contained saccharine were obtained as follows:

Five samples, from Essex Bottling Company of Peabody; 4 samples each, from Westfield Bottling Company of Westfield, and Thomas Cattachio of Worcester; 3 samples each, from Floyd Beverage Company of Revere, and Karl Kaplan of Pittsfield; and 2 samples from Thomas Wilson & Company of Rockport.

Five samples of olive oil which contained cottonseed oil, were obtained from Pace & Sons, Providence, Rhode Island.

One sample of vinegar which was low in acid, was obtained from each of the following:

R. A. Sears of Lawrence, and Reliable Jobbing & Spice Company of Boston.

There were four confiscations, consisting of 400 pounds of tuberculous beef, 46 pounds of decomposed pork loins, and 321 pounds of decomposed roasters.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of March, 1925: — 1,729,479 dozens of case eggs, 327,162 pounds of broken out eggs, 501,182 pounds of butter, 683,459 pounds of poultry, 3,540,840 pounds of fresh meat and fresh meat products, and 1,091,533 pounds of fresh food fish.

There was on hand April 1, 1925: — 1,618,920 dozens of case eggs, 357,470 pounds of broken out eggs, 2,335,244 pounds of butter, 10,459,359 pounds of poultry, 16,946,088 pounds of fresh meat and fresh meat products, and 1,944,194 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of April, 1925: — 6,295,710 dozens of case eggs, 539,682 pounds of broken out eggs, 465,556 pounds of butter, 515,040 pounds of poultry, 3,076,540 pounds of fresh meat and fresh meat products, and 1,782,142 pounds of fresh food fish.

There was on hand May 1, 1925: — 7,673,310 dozens of case eggs, 692,566 pounds of broken out eggs, 431,324 pounds of butter, 8,424,291 pounds of poultry, 13,882,350 pounds of fresh meat and fresh meat products, and 2,781,424 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of May, 1925: — 5,351,280 dozens of case eggs, 951,722 pounds of broken out eggs, 988,263 pounds of butter, 757,319 pounds of poultry, 2,757,447 pounds of fresh meat and fresh meat products, and 4,111,397 pounds of fresh food fish.

There was on hand June 1, 1925: — 12,573,740 dozens of case eggs, 1,294,635 pounds of broken out eggs, 760,404 pounds of butter, 7,420,947 pounds of poultry, 13,985,843 pounds of fresh meat and fresh meat products, and 6,265,114 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, Eugene R. Kelley, M.D.

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The Eastern District	George T. O'Donnell, M.D., Boston.
The Northeastern District	Lyman A. Jones, M.D., Swampscott.
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IS THERE HOPE OF CONTROLLING COMMUNICABLE DISEASE?

BY GEORGE H. BIGELOW, M.D., COMMISSIONER, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

EVERY case of communicable disease requires three factors, (1) the infecting organism, (2) the susceptible individual, and (3) contact between the two. Without any one of these such a disease cannot occur. Thus there are three points where control may be instituted. Let us consider them further, reserving the most promising for the last.

(1) *The infecting organism.*—If all the organisms capable of causing a given disease could be eliminated the disease would disappear. Hopes of accomplishing this in yellow fever are indicated by Dr. Vincent of the Rockefeller Foundation, and this was the last adventure in the dramatic career of the late Dr. Gorgas. Fumigation, since it aims to kill organisms locally, is a feeble effort in this direction. Cooking infected meat to kill the parasite of trichinosis, and the pasteurization of milk to kill the organisms of such milk-borne diseases as typhoid, scarlet fever, diphtheria, and septic sore throat come under this heading. The same result would be accomplished if all the organisms were permitted to live but in some way had their ability to produce disease (virulence) so reduced as to make them incapable of producing the disease. So far, however, this is only of theoretical significance.

) *Contact between the infecting organism and the susceptible individual.* Quaran- is perhaps the most familiar and universally applicable method aimed to plish this. The difficulty with quarantine in our communities is that it cannot be instituted in individual cases until the diagnosis has been made, by which time a large part of the spread of the disease has been accomplished. A familiar example is the onset of measles which frequently cannot be differentiated from a common cold. It is probably at this stage that communicability is at its height. This objection does not hold, however, in maritime quarantine where the suspect is held until the period of incubation (i. e., the interval between exposure and the development of symptoms) has passed before being allowed to enter the port. This allows time for diagnosis before exposure of others has occurred. Thus, much disease that would otherwise have come into this country with immigration has been effectively kept out. However, with all the shortcomings of quarantine as we see it commonly practiced it must be utilized till something more effective can be substituted. Except in the rare emergency when the police force is called in the health officer must rely on public opinion to enforce quarantine. In other words, within limits quarantine against a given disease is just as good as and no better than the general public demands.

Other examples of efforts to keep the organism and the individual apart are screens to shut out the mosquitoes infected with malaria, shoes to prevent the penetration of the feet by larvæ of hookworm, restraint of dogs to prevent the rabid animal from biting other dogs or human beings, and the treatment of drinking water and sewage to remove the organisms causing typhoid and the diarrheas.

(2) *The susceptible individual.* Could all the inhabitants of the world be made insusceptible to a given disease like diphtheria, for instance, it would make no more difference than perhaps physical inconvenience were the world teeming with diphtheria organisms as the classical head of Medusa was said to teem with snakes. No persons would have diphtheria. But what are the ways in which the individual may be immunized against a disease? One way in certain diseases is by having the disease. You either recover or die, and in either case you are free from further ravages from that particular disease, or in other words, you are immune. But this is a costly method of obtaining immunity, and, although it was utilized in the past centuries to protect against the today unbelievably hideous scourge of smallpox, it is in general looked on with disfavor.

What of attempts to obtain immunity artificially? The general basis of all such attempts is an effort to reproduce the disease itself or one sufficiently similar to it to give protection without introducing the element of death or permanent damage. The production of cow pox, which is commonly spoken of as "vaccination," is perhaps the best known example of this. Here a mild disease is produced in order to protect against a severe disease. In immunization against diphtheria through injections of toxin-antitoxin mixtures the mild discomfort is largely due to the same toxin which produces many of the characteristic symptoms of the disease, but it is present in too minute amounts to do harm. Diphtheria and smallpox, then, are diseases which should disappear completely if our present knowledge were fully utilized.

Typhoid prophylaxis is another example of artificial immunization. It was largely responsible for the unbelievably low typhoid rate in the late war. Here the principal drawback is that the immunity lasts but a few years. Control of hydrophobia through the production, artificially, of an immune dog population offers hope in this disease, the mortality of which is 100%. Cholera and some of the other tropical diseases have been mitigated in this way and await only public enlightenment and the administrative machinery necessary for their universal application. There is reason to hope that in the not distant future, methods for the control of scarlet fever will be as perfected as are those for diphtheria. Somewhat more remote is the conquest of such stoically accepted household ills as whooping cough and perhaps measles. Unfortunately the common cold and influenza are as baffling as ever, though they are attracting more and more clinical and laboratory attention which should give ultimate hope of solution. Difficult and at times disheartening as is the task of the investigator in these matters, it is perhaps even more difficult to devise methods of and to maintain courage in popularizing the results that are well established. Health officials, physicians, and humanitarianly minded laymen must bend every effort to set up competent machinery for wholesale utilization of knowledge lest the painstaking scientists of the future, as well as the past, shall have labored in vain. Smallpox, diphtheria and typhoid fever will disappear completely if the people so will it.

WHAT SHALL WE DO ABOUT DIPHTHERIA?

By Edwin H. Place, M.D., Physician-in-Chief, South Department, The Boston City Hospital.

FOR many years up to recently, the death rate of diphtheria has been dropping. The deaths per unit of population have decreased in Boston from about two hundred per hundred thousand to about twenty per hundred thousand. Similar drops have occurred throughout the world. In few diseases has the medical man so complete a knowledge and so valuable and certain means of control as for diphtheria. Its cause is known and its sources may fairly readily be found. The manner of its spread is clearly understood. It is easily possible to find out those who can contract the disease and those who cannot. It is possible to cure, almost without exception, all cases coming under early treatment.

Reasons for Continuing Death Rate.

Under such conditions, a citizen might reasonably infer that the dangers of this disease to our children have been almost completely removed. But this is not the fact. There are hundreds of deaths every year in this State and for the past ten years the drop in the death rate has practically ceased. How can we reconcile this condition with what we might expect? The answer is quite simple. The sources are men, women and children, often apparently well, who have the diphtheria germs in their throats and noses and at times in other places. To find all of these and to remove them sufficiently from contact with their fellows until free from the germs would be an enormous undertaking and extremely expensive. No city has yet felt that it could afford these steps. Moreover, to be of any real value every other community from which people might come must take the same steps or else the effort is wasted.

It is clear, therefore, that none of us can be sure but that he will come in contact with one of these sources and possibly contract the disease. But with antitoxin at hand, none will die. This would be true if each patient could be treated at once. But so rapidly does the poison in this disease develop and so quickly does its action occur, that within two days and rarely even in a day, a fatal injury may have occurred. The patient, however, may feel fairly well; his parents or friends may think he has only a mild indisposition. His physician, even, may need a very careful examination to disclose the true seriousness of the situation, the results of which may not be evident for days or even weeks. It is this insidious onset, this harmless guise in which the disease creeps on its victims that renders treatment less than perfect. It is probable that the present death rate represents the lowest level possible for these methods of management.

Newer Methods of Prevention.

Fortunately, here the benefits of the researches of Schick, Berhing and others become evident. The Schick test shows the absence of immunity and injections of toxin-antitoxin are used to produce a long immunity. These methods are simple and safe. In hundreds of thousands of cases no harm has resulted. In two instances, one in Texas and one in Massachusetts, severe and in some cases dangerous reactions followed toxin-antitoxin. These were due, in the case of Texas, to a mistake in sending the wrong bottle from the laboratory, and in the Massachusetts instance, to the use of frozen material shortly after being thawed. Precautions against these dangers are so complete that it is needless to fear anything from them again.

The danger of diphtheria is greatest the younger the patient and although no age period is safe most of the deaths occur below five years of age. The protection by toxin-antitoxin injections has so far been largely in school children, who though well worth the effort are really less in danger of death than their younger brothers and sisters. This fact should be carried home from school by the pupils and through other channels and provision should be made for this safe protection of all the younger children of this Commonwealth.

It does not seem possible that parents, acquainted with these facts, would be willing to have their children run this needless danger of diphtheria, but such is the case. The reasons are varied. Often it is pure negligence—they intend to have it done sometimes but just hadn't got to it. Some "don't believe in these new things." Some comfort themselves by thinking "Well, probably it won't be my boy. I am so careful about him." We can tell these parents that there is no way to safety from diphtheria while living in our part of the world that compares with these injections—a protection that guards the body itself from the assaults of this disease.

THE RESULTS OF PREVENTION.

It is yet too early to draw opinions from the death rate because this preventive has not been sufficiently extensively used. It is comforting, however, already to find in New York, Boston, New Haven and other cities where immunization has been used, that the death rate has reached a much lower point than ever before. The diphtheria patients still coming to our hospitals are found to be those who did *not* take the toxin-antitoxin. The nurses serving in diphtheria hospitals now protected by this method do not have the disease as was so frequently the case previously.

There are two points that should be clearly in mind: first, that the best time to take the preventive treatment is at the age of one year or just before, but later is better than not at all; second, that the treatment may have to be repeated in about one case out of ten in order to get sufficient protection. All patients should, therefore, be retested about six months after the treatment to be sure that immunity has developed.

So far as diphtheria is concerned no child in this Commonwealth has had his just rights until these facts have been brought to every parent or guardian of the State. If we must continue to sacrifice children to this disease, the community can better spare the offspring of parents too careless or too unintelligent to secure these benefits for their children.

THE PRESENT STATUS OF SCARLET FEVER CONTROL.

By BENJAMIN WHITE, PH.D., DIRECTOR, DIVISION OF BIOLOGIC LABORATORIES, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

OSLER describes scarlet fever as an infectious disease characterized by a diffuse exanthem and an angina of variable intensity, to which definition one might add — sometimes followed by various local or general septic complications. If we are to understand and appraise the newer contributions to the diagnosis of susceptibility, the production of active immunity and the specific treatment in this disease, it is necessary to analyze its symptom complex. May scarlet fever be a pure toxemia, or a toxemia followed by a septic condition both caused by the same virus? Is it a toxemia complicated by septic manifestations set up by a secondary virus; or may scarlet fever, in some cases, consist merely of the familiar septic affections without a preliminary or accompanying toxemia?

The work of Dochez and the Dicks indicates that a hemolytic streptococcus may be the specific cause of the disease and that this microörganism produces a poisonous substance capable of causing the characteristic toxic symptoms, and may produce some, at least, of the septic conditions. On this premise is based the rationale of specific biologic prevention and treatment.

1. *The Dick Test for Susceptibility to the Disease.*

The Dicks have found that the filtrate from cultures of streptococci of scarlatinal origin when injected into the skin in appropriate doses—as in the Schick test— may produce a slight inflammatory reaction in the skin. Those who so react are apparently or actually susceptible to scarlet fever, while no reaction appears in the majority of persons who have recovered from the disease. This test, if proven to be accurate and reliable will be of great value in determining whether or not any individual is liable to contract the disease after exposure. As yet our experience with this test is insufficient for us to give it unqualified approval for general use in private medical or public health practice.

2. *Active Immunization against Scarlet Fever.*

These filtrates from scarlatinal streptococcus cultures, when injected in sufficient amounts into man set up temporary toxic symptoms similar to those produced by the disease itself. Furthermore, the Dicks and others have reported that a series of three or four injections of smaller but increasing doses of these filtrates causes persons so treated to lose their skin reactivity to the Dick test and to become apparently immune to an attack of scarlet fever. If this claim is substantiated by further experience we will have an immunizing agent against scarlet fever ranking in value with the well-known toxin-antitoxin mixture for the prevention of diphtheria. At the present time the immunizing effect of the Dick toxin is being studied and its results observed in many large group investigations. So far the reports hold out promise of the future worth of this procedure, but until a greater mass of convincing evidence is forthcoming, final judgment and approval of this product and its general use must be withheld.

3. *Serum Treatment of Scarlet Fever.*

The Dicks by injecting horses with repeated doses of scarlatinal streptococcus filtrate have developed a serum which neutralizes the toxic action of these filtrates, which blanches the skin when injected into the skin, and which when injected into persons sick with scarlet fever brings about a rapid improvement of the toxic symptoms, thus usually effecting prompt recovery. This serum appears to act as an antitoxin, and has little or no beneficial influence on any septic conditions existing at the time of serum treatment.

Dochez, by immunizing horses with injections of live cultures of the scarlatinal streptococcus, has succeeded in producing a serum which neutralizes toxic filtrates of these streptococci, blanches the rash when injected into the skin, and promptly ameliorates the toxic symptoms. While this serum possesses some antagonistic properties against the streptococcus itself it does not appreciably affect the course of septic conditions already established. It is possible that antitoxic serums may, if given sufficiently early in the disease, prevent to some extent the development of subsequent infectious processes due to this particular streptococcus.

Such a serum, under the name of "Scarlet Fever Streptococcus Antitoxin," is now an accepted and valued therapeutic agent. It is manufactured under federal license and is an article of commerce. It is supplied in the unconcentrated and concentrated form, but the latter is preferable. Its use is indicated in all moderately severe and severe cases and in mild cases showing a tendency to increase in severity. Its administration in the earliest possible stage of the disease is urgently recommended and when it is thus given and in sufficient quantity its effects are as gratifying as those following the use of diphtheria antitoxin in diphtheria.

The Massachusetts Department of Public Health is now manufacturing this scarlet fever streptococcus antitoxin and distributes it to physicians free of charge for use within the Commonwealth. Complete directions for its use accompany each package of this product, which can be obtained upon application to the State Department of Public Health. Later, when a larger supply can be produced, it will be generally distributed through all the agencies now employed for the distribution of the Department's other serums and vaccines.

WHY GET VACCINATED?

BY WOLFERT G. WEBBER, M.D., EPIDEMIOLOGIST, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

EVERY one likes to think he is a reasonable and sensible person in most of the affairs of life. If smallpox were present among us now there would be very little hesitation about getting vaccinated. But is it reasonable and sensible to wait until smallpox is here? Why not help to keep it out of Massachusetts?

Do you depend upon your health officials to keep smallpox away from your neighborhood? In these days when a person can travel half around the world in two weeks, a person may contract smallpox on the other side of the world and not be taken sick until he arrives right in your neighborhood. And then consider all the travelling between here and points where smallpox is prevalent right here in the United States. Do you think you are safe from exposure? You are not. No health officer can keep smallpox away from you so long as a large proportion of the people are unvaccinated, or vaccinated once many years ago.

If you have been successfully vaccinated twice your chance of dying of smallpox is about zero. And no authenticated death from uncomplicated smallpox is recorded in a person successfully vaccinated within seven years before exposure.

Many think it is time enough to get vaccinated when known exposure has occurred. It is true that vaccination during the first week after exposure may modify the severity of the disease, but you cannot depend on prevention unless you are vaccinated before exposure.

The efficacy of vaccination has been proven in so many places at so many different times that those who persist in doubting must be either misinformed or prejudiced.

Did you ever stop to consider how your chance of exposure to smallpox is affected by the proportion of immune people in the community? If you live where every one is susceptible your chance of exposure is pretty large because you never know who may catch the disease. If you then move to a place where half the people are immune will your chance of exposure be reduced one half? Yes, and *more* than one half. If you live where only one in ten is susceptible your chance of exposure will be *less* than one tenth of what it was in the first instance. Will you do your part to help protect the community, or will you be a parasite and depend on others for your protection?

The School Vaccination Law.

Whereas the interpretation of the school vaccination law in Massachusetts has been and is the source of considerable confusion to school boards and certain parents, a summary of legal opinion in this regard is given in the hope it may be of some assistance.

First, as regards what the law *says*, there seems to be little question. It says that no unvaccinated child shall attend a public school without presenting an exemption certificate from a registered physician. Such a certificate must state that the physician signing it has personally examined the child at the time of giving the certificate, and that in his opinion the child's physical condition is such that his (or her) health would be endangered by vaccination.

This places the school committee under the obligation of requiring for each child admitted to a public school *one* of the three following statements:

(1) A certificate of vaccination from a registered physician.

(2) The statement of the school physician that the child shows evidence of successful vaccination.

(3) An exemption certificate signed by a registered physician.

Regarding the vaccination certificate, while the legal definition of vaccination requires only the *introduction* of the active principle of cow pox into the skin, the school committee is authorized to require evidence of *successful* vaccination, as for instance by requiring the following data over the signature of a registered physician:

(1) Date of vaccination.

(2) Mode of inoculation.

(3) Type of reaction.

The school committee is further authorized to require renewal of the exemption certificate every two months, if two weeks in addition are allowed for procuring a new certificate.

Prevalence of Smallpox.

From January 1 to July 1, 1925, 11,816 cases and 430 deaths were reported in the United States. In the same period, 10 cities in the United States had 4,590 cases and 360 deaths.[1] In the year 1924, 16 cities in the United States had 10,981 cases and 513 deaths.[2] In 1924 the United States led all the countries of the world, excepting British India, in the number of smallpox cases reported.

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[1] *Statistical Bulletin*, Metropolitan Life Insurance Co., September, 1925.

[2] *Public Health Reports*, U. S. Public Health Service, September 4, 1925.

RABIES.

By Paul R. Withington, M.D., Milton.

RABIES is an acute, specific, rapidly fatal disease communicated by a rabid animal to a normal one or to man by means of saliva from the infected animal entering through a break in the skin. This may be accomplished by the licking of a wound already present, or more commonly by a bite. Once introduced, the virus "incubates" for varying lengths of time in various animals (from 14 days to 1 year or even longer). The average time is, in dogs from 21 to 40 days, in humans 40 days is the usual minimum but as the virus reaches the central nervous system by travelling along the nerve trunks the time is shortest for wounds of the face and scalp. Since the disease, once established, runs a very rapid course, and since the saliva does not contain the virus until 3–8 days before the animal is actively ill, to make a diagnosis it is only necessary to confine and observe an animal suspect for 10 days after the patient has been bitten. As the Pasteur Prophylactic Treatment (active immunization) can be finished in 21 days, before undergoing it, it is the accepted procedure to observe a suspected animal rather than to kill it; if the animal does not die in this period the prophylactic treatment is unnecessary. However, the fact that the mortality rate is 100% once the disease is established makes it imperative that, in any case of doubt of the identity of the responsible dog, there be no delay in instituting treatment.

Stages of the Disease.

There are three stages in the disease. First, the prodromal stage in which the animal's disposition is abnormal, he is restless, irritable or unduly affectionate, sleepless and hypersensitive. This stage progresses to the second, that of excitement. Stimulation causes reflex spasm and makes swallowing impossible (hence the synonym "Hydrophobia"). It is in this stage, chiefly, that the animal spreads the disease, for he runs long distances biting any animal he may encounter. The third, or paralytic stage, terminates in death, and when it is abnormally long with relation to the others, the animal is said to have "dumb rabies." If an animal has bitten any one or has had any of the above symptoms, his head should be examined for rabies if he dies within 10 days. If found positive, treatment of the victim should be started at once. All dog-bites should be cauterized immediately with strong carbolic acid and in such wounds bleeding should not be discouraged.

Methods of Eradication.

So much for prevention of rabies once it appears in the community. How can it be eradicated? According to the present Massachusetts State Laws the aldermen or selectmen of each city or town are responsible for issuing orders of restraint once the disease appears in their locality. As animals travel as much as 143 miles while rabid, and as selectmen of different towns cannot well act in unison, this law is obviously faulty. Action should be concerted, and power to act should be placed in the hands of the Commissioner of Public Health. Muzzles should be discarded as obsolete and useless. They seldom fit animals and are as likely as not to be found dangling aimlessly about their necks, thus complying with the order that they shall be worn; whereas any dog whose muzzle does fit is put at a hopeless disadvantage on meeting a rabid animal, and is, thereby, prevented from possibly killing him and checking his course. The present law, too, is not clear. The town counsel of one town ruled recently that the dog's owner, not the selectmen, might decide whether dogs should be "muzzled or restrained" and caused the selectmen to rescind their original satisfactory order and substitute one which allowed muzzling. Restraint is the best method at present in general use in Massachusetts, but even this is far from perfect, as the police are likely to become lax in enforcing it long before the 90-day quarantine period is over, and as with all quarantining, a single lapse may invalidate the whole effort.

Recently in Japan, on a large scale, and in Connecticut and New Jersey on a somewhat smaller one, the active immunization of dogs has been successfully carried out. This is the most promising method of controlling this disease, and should be made obligatory for the obtaining of a dog license. As protection is temporary (about one year) reinoculation should be required with each yearly renewal of the license. No ill effects to the dogs have been found to follow inoculation, while published figures show startling results towards eradicating the disease. As there were 465 known cases of rabies in animals in Massachusetts in 1923 (an increase from 65 in 1916) the importance of concerted, intelligent, and unified action is apparent. And to accomplish this, existing laws must be changed.

Conclusions:

(1) All measures looking toward the eradication or control of rabies should be taken from the hands of local authorities and placed in the hands of the State Department of Public Health or the Division of Animal Industries of the State Department of Conservation.

(2) A law requiring the anti-rabic inoculation of all dogs each year as a prerequisite to obtaining a license should be passed *and enforced.* All unlicensed dogs should be driven from the streets.

(3) If the legislature is not ready for these rather radical steps, the present law[1] should be amended by the striking out of the words "muzzled or." The law will then read as follows: "The aldermen or selectmen may order that all dogs shall be restrained from running at large during such time as shall be prescribed by such order. . . ."

GONORRHEA AND SYPHILIS.

By Wolfert G. Webber, M.D., Epidemiologist, Massachusetts Department of Public Health.

It should be understood at the outset that venereal disease control activities in Massachusetts are not confined to a single group. These activities have a legitimate place in the program of many different organizations both public and private, from health departments through the courts, insurance companies and welfare societies down to the church, the school and the home.

Legislative Enactments.

Nor are venereal disease control activities of so recent date as many are prone to suppose. Long before the sudden access of interest in the problem coincident with the World War, clinics and physicians were performing an important service. Legislation was already in force for the licensing of hotels and dance halls and the suppression of prostitution. Sex offenders were regularly penalized by courts.

Additional legislative enactments of the past ten years have assisted in laying a foundation for a consistent program or organization of community resources for prevention. Among these may be mentioned suppression of advertising by unauthorized agencies, provision for examination and treatment of persons under sentence of 30 days or more, and provision for reporting cases of gonorrhea and syphilis. This last is perhaps the most important since knowledge as to the prevalence of a disease must antedate any sound program of control.

The lesson learned in the last ten years may be briefly stated as this,—that whereas we are dealing with a problem of enormous magnitude the solution is not to be reached through methods of legislation and propaganda alone. The necessary hygienic measures are relatively ineffective unless supported by adequate organization of community resources for prevention. Such organization roughly takes the form of (1) development of clinical facilities; (2) development of social resources; and (3) the development of sound public opinion. This has been the general trend of venereal disease control activities since the war. An abstract of some important features in this connection is given below.

Development of Community Resources for Prevention

I—*Development of Treatment Facilities*
  Establishment and subsidy of clinics.
  Manufacture and distribution of drugs through clinics.
  Druggists requested not to dispense remedies for self-treatment without medical advice.

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[1] Chapter 140, General Laws, Section 167.

II—*Development of Social Resources*

Physicians Clinics Courts Boards of Health	bring and keep the irresponsible patient, or sex offender, under medical observation until non-infectious
Physicians Welfare agencies Clinics	bring the family of patient under observation through the patient
Physicians Clinics	bring the source of infection under observation through the patient
Protective workers and police women Recreational facilities	help to prevent exposure to infection

DEVELOPMENT OF PUBLIC OPINION.

I—*Legislation*

Legislative enactments bearing on the venereal disease problem.

Reporting of cases of gonorrhea and syphilis by number and by name only if irresponsible.

Suppression of advertising by unauthorized agencies.

Examination and treatment of persons under sentence of 30 days.

Licensing of hotels and dance halls.

Suppression of prostitution and penalizing sex offenders.

II—*Public Information*

Lectures, posters, slides, films and literature distributed through local and private agencies.

Study groups organized by or through local and private agencies.

Officials and organizations devoted to promotion of public health no longer feel justified in regarding the venereal disease problem as set apart by itself from other public health problems. In other words, we are coming to regard venereal disease in the same light in which we now regard any other public health problem, namely as an aspect of the vast problem of social pathology. And by "social pathology" we can understand the problem of man's mal-adjustment to his social environment.

SOCIAL IMPLICATIONS.

Neither are we any longer justified in the assumption that the *methods* by which we must deal with venereal disease are essentially different from the methods by which we deal with any other public health problem. These methods can be generally described as sanitation and hygiene,—the former directed primarily toward improvement of the environment, while the latter is directed toward the modification of the habits and tendencies of the individual. But in dealing with the venereal disease problem we find that we are concerned almost exclusively with methods of *social* sanitation and *social* hygiene.

Activities directed toward the control of venereal disease have two immediate objectives: (1) Development of community facilities for prevention and (2) development of healthy public sentiment to replace the morbid tendency to ignore the problem or to escape the responsibility. But we can hardly confine ourselves to one of these methods alone without the other, if we are to formulate an intelligent approach to the venereal disease problem, as an integral part of the larger problem. Social sanitation and social hygiene must necessarily develop together and neither one is adequate without the other.

But for reasons of practicability the venereal disease control activities of the Massachusetts Department of Public Health have been largely, though not exclusively, confined to the former of these two objectives. For while the development of community facilities for prevention is ultimately dependent on the development of healthy public sentiment, the latter as an organized effort involves a campaign of intensive and extensive publicity and a large specially trained personnel which public organizations are not yet in a position to undertake or to provide. In other words, the public organization can proceed no faster or farther than existing public sentiment will support with appropriations.

DEVELOPMENT OF COMMUNITY FACILITIES.

As a basis for development of new community facilities for prevention, it is at least reasonable to begin with an effort to develop existing facilities. By subsidy and personal conference with members of the clinic staffs the Department is aiming to improve the clinic service to the patient and to the community as outlined above. Other agencies, such as courts and welfare societies, have been approached and encouraged so far as Department resources would permit. Special attention has been devoted to securing sound and thorough treatment for the patient, and adequate medical attention for the family contacts and source of infection. The matters of police control and protective work have necessarily been left to local and private agencies.

As a means of promoting both development of local facilities and development of public sentiment the Department has provided for reporting of cases and sources of infection to the local health department. This tends to promote the sense of local responsibility for local conditions.

The Department will be prepared to investigate sources of infection where the local health authorities feel unable to assume this important work. We will also advise regarding methods of returning patients to treatment, but will expect the local authorities to assume active responsibility for this as they would for any other case of communicable disease that was not complying with regulations and thereby endangering the public health.

PRESENT PROGRAM.

With the object in view, more especially, of developing local sentiment an arrangement has been made with various organizations for the formation of study groups in several communities where local conditions warrant such a step. The collaborating organizations are the Massachusetts League of Women Voters, the American Social Hygiene Association, the Massachusetts Society for Social Hygiene and the State Department of Public Health. The study groups are to be under the direction and inspiration of Dr. Helen I. McGillicuddy, whose wide experience with the medical, social, legal and economic aspects of these problems promises well for her ability as inspirer and guide of these groups. The unique feature of this program is that instead of remaining passive the group will be responsible for taking the initiative under guidance for studying conditions in its own community. This may lead in time to a step to better the conditions, but what is even more important, it will create a nucleus of informed public opinion which will support the health authorities, courts, clinics and other groups that must have such support if they are to function adequately.

THE PART OF STATE AND LOCAL HEALTH AUTHORITIES IN THE CONTROL OF COMMUNICABLE DISEASES.

BY LYMAN ASA JONES, M.D., STATE DISTRICT HEALTH OFFICER.

UNDER the Massachusetts Statutes local boards of health, practically, have entire responsibility for the management of communicable diseases in their respective communities. It is true that the Department of Public Health, in the presence of threatened or actual outbreaks of diseases dangerous to the public health, has co-ordinate authority with local boards. But since it has no funds available for carrying on such work the state health authorities have elected, almost without exception, to act in an advisory capacity, rendering all possible assistance to local boards of health. Such assistance is rendered in various ways:

a. Through regular supervision of public water supplies, sewage disposal plants, stream pollution, etc., and the laboratory examination of frequent specimens from such sources.

b. Through supervision of cold storage plants, the approval of appointments of local inspectors of slaughtering, and the examination of many samples of food, milk and drugs.

c. Through furnishing aids to diagnosis—the examination of throat and nose cultures for diphtheria, blood smears for malaria and the presence of gonococci, material for making the Schick test, used in determining those susceptible to diphtheria; through making Widal tests, typing pneumonia sputum, etc.

d. Through furnishing specific remedies for the treatment of disease, such as antitoxin for the treatment of diphtheria, toxin-antitoxin mixture for bringing about active immunization against diphtheria, serum for the treatment of type one pneumonia, vaccine for the prevention of smallpox and serum for the treatment of scarlet fever, arsphenamine for the treatment of syphilis.

e. Through efforts to spread knowledge of the causes of diseases, their modes of transmission and means of prevention.

f. Through the availability of state district health officers at all times to consult with the local authorities and aid in field investigation as may be desirable.

All of these services and aids are rendered by the Department of Public Health freely and without charge to the local boards of health and to the inhabitants of the Commonwealth.

RESPONSIBILITY OF LOCAL AUTHORITIES.

Upon the local authorities, as stated above, devolves the immediate task of supervising all cases and outbreaks of communicable disease; upon them rests the duty of investigating such cases, the establishing and determining the period of quarantine and in case of necessity, giving aid. If aid is given, they must inquire and with the assistance of the overseers of the poor, determine the probable settlement of such case, and send the notices required by law. Such notices, report of the case to the Department of Public Health and to the Department of Public Welfare and to the city or town of settlement, within stipulated periods, are necessary to maintain a valid claim for reimbursements for funds expended in caring for and aiding such a case.

The local board determines also the amount and character of disinfection necessary after the recovery or death of persons suffering from diseases dangerous to the public health.

In general under the law, and specifically in the case of outbreaks or threatened outbreaks of diseases dangerous to the public health, local boards of health are authorized to take measures to prevent the spread of disease. Of necessity such authority is very broad in its application, and from time to time it is definitely increased. The board may establish clinics, camps and preventoria; may employ health nurses and other necessary agents. It may employ a physician to the board. It may maintain a laboratory and if a city or town has a contagious hospital such institution is under their charge. Employees in such institutions are hired by them.

THE CITIZEN'S PART.

A satisfactory health administration cannot be brought about, however, by the Department of Public Health or the local boards of health, or both together, except with the co-operation of the citizens of a given community as well. To do work successfully the local board needs the backing of those over whom it has jurisdiction, the backing with funds, so that needed and capable agents may be employed so that attractive offices or quarters may be obtained, quarters that in themselves will suggest the importance of health work and offer an illustration of standards sought.

In conclusion it may be said that the time has come when further progress toward possible attainable health standards and freedom from communicable diseases, can be secured only by the active co-operation not merely of state and local health authorities, which now exists, but through the personal interest and active support of those comprising the general public as well. It is essential that individuals generally should have an appreciation of the importance of community hygiene and a knowledge of personal hygiene which will lead them to make such knowledge of practical daily use.

THE PLACE OF THE SCHOOL IN PROPHYLAXIS.

By Merrill Champion, M.D., Director, Division of Hygiene, Massachusetts Department of Public Health.

ONE of the chief concerns of the health officer is the prevention of communicable disease. One of his chief difficulties is to find suitable opportunities for putting into practice prophylactic measures which he knows to be efficacious.

The best time to prevent physical disability of all kinds is in childhood and at the youngest possible age. Unfortunately, however, there is relatively little machinery developed for this purpose at present. Well Baby Conferences reach a certain number of children and get them to their family physicians. Well Child Conferences are beginning to reach the pre-school child. But when all is said and done, it is the school child to whom we turn in our efforts to prevent disease as well as to promote health habits in general. This is far from meaning, nevertheless, that the school system should be turned into a series of medical clinics conducted by school departments and paid for by public taxation.

It is a pretty good principle to stick to that governmental agencies should not do for the individual citizen what he can do for himself. Speaking theoretically, there is no prophylactic measure against communicable disease, in ordinary use, which could not be left to individual family and family physician. The time will undoubtedly come and it is to be hoped, soon, when this will be a reality. At present, however, we have not reached the point where such reliance can be placed upon individual initiative. The organized community has a stake in the matter in that the control of communicable disease involves the police power of the state and its subdivisions and the presence of communicable disease in a community jeopardizes the lives of all. A large proportion of the public is as yet very hazy about the need of prophylaxis against diphtheria, typhoid or smallpox. They need to be shown and this can best be accomplished by a demonstration on a large scale of the efficacy of these measures of prevention. The school can give us our best opportunity to do this.

A Governmental Principle Applied.

Let us take as an example of what we have been talking about, the prevention of diphtheria. This is a disease about which we know a great deal, since we know its causative agent, and its cure through the use of antitoxin; furthermore, we know how to detect in the individual susceptibility to the disease by means of the Schick Test and how to immunize him against it by means of the Toxin-Antitoxin Mixture. Theoretically it ought to be possible to wipe this disease from the face of the earth. As a matter of fact, however, we still have many deaths from diphtheria in every community of any size. The reason is, of course, a lack of a realizing sense of the value of prophylaxis. Therefore the community, through its official board of health, should demonstrate on a sufficiently large scale the value of the Schick Test and of immunization. To do this it must naturally turn to the schools. Working in close co-operation with the school authorities and preferably through the school physicians, and always with the written consent of the parents of the children to be tested and immunized, the health department can make the necessary demonstration. The result, if successful, ought to be an awakening of parental responsibility to the need of prophylaxis against diphtheria. When this is brought about, we shall see the child of pre-school age, immunized by his family physician, coming to school protected against diphtheria. The school will then be happily and properly absolved from responsibility for prophylaxis.

To the Memory
of
Eugene R. Kelley

Who as the Second Commissioner of Public Health of the Commonwealth set a high Standard of Devotion, Judgment, and Enthusiasm which inspired Admiration and Affection in his Associates, while furthering the cause of sound Public Health throughout the State and Nation, which will be an enduring Inspiration to those who follow after him, this page is affectionately dedicated by the Public Health Council who had the Privilege of Association with him in the carrying out of those things which were so near to his Heart.

THE COMMONHEALTH.

Quarterly Bulletin of the Massachusetts Department of Public Health

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Frances Klein, S.B., Associate Editor.
Room 546, State House, Boston, Mass.

Death of Doctor Simpson.—On November 13, 1925, occurred the death of Dr. Charles E. Simpson, a District Health Officer of the Department of Public Health. Dr. Simpson first joined the staff in 1907 as an "Inspector of Health" with the State Board of Health as it was then called. When the State Board was reorganized in 1914, becoming the Department of Health, Dr. Simpson became a full-time district health officer in charge of district four, a position which he held continuously till his death.

Through this long service with one of the active state boards Dr. Simpson saw the development of many of the phases of the newer public health movement and always showed himself keenly alive to their significance. His acquaintance with the details of health administration in his own health district was wide and accurate. Each of his towns was a personality to him and he dealt with them as he would with a friend on the ground of their common interest. His is a place which it will be hard to fill.

Death of Mr. Jewett.—It is with the greatest regret that we learn, at the moment of going to press, of the death of Mr. Warren Jewett, for the last six years a member of the Public Health Council. Mr. Jewett brought to the service of the State single-minded devotion to duty and an abounding common sense. As one of the two members of the Public Health Council who are not physicians he contributed a very important point of view and showed throughout a broad appreciation of the public's interest in health work, at the same time being sympathetic toward the medical and scientific aspects of the problem. Such breadth of view is not easy to find.

We shall all greatly miss his quiet cordiality and sympathetic interest.

Our New Commissioner.—In every large organization a time comes sooner or later when changes occur, when old familiar faces disappear and new ones take their place. It is seldom that the change brings to the whole staff the unmitigated grief that came to us with the news of the death of the head of the Department of Public Health, Dr. Kelley. Our loss is shared by the whole body of health workers throughout the country.

Yet in the midst of our sorrow we knew that the work must go on; that the ranks must close up and a new leader take command. Under such circumstances it was fortunate that the new leader could have been chosen from the Department itself. Dr. George H. Bigelow, the new Commissioner, has served for the last year and a half as Deputy Commissioner and Director of the Division of Communicable Diseases which makes it possible for him to take over his new duties with the security which comes from actual experience. The editors voice the feeling of the Department and of health workers generally throughout Massachusetts in wishing him the success which his training, experience and personality render certain.

What is Constructive Medicine?—It is not very exceptional to hear the question raised by educators and others regarding the significance of such terms as "constructive medicine" and "health education" in current use. The questions implied or expressed relate to how constructive medicine differs (if at all) from other medicine, or how is health education related to other education? And how is constructive medicine related to health education?

It seems that it is not yet apparent to many why we are obliged to use the term "constructive" as applied to medicine (any more than to education). "Is not all medicine constructive?" Certainly it is not ordinarily understood to be destructive. Why qualify it at all? The reason is because "medicine" is still understood in the limited sense as applying to the treatment of the sick,—that is, reparative medicine. And similarly the expression "preventive medicine" is also interpreted, in a limited sense, to signify the use of vaccines and sera in prevention of certain infections. If "medicine" were understood and used in the same broad sense as "education" is used there would be no need for qualifying adjectives such as "constructive." The situation is much the same as when, a generation or so ago, the term "physical education" came into common use. At that time the relation of physical education to other education or to education as a whole was not commonly understood, even as well as it is today. But gradually we are coming to see that education is a broad enough term to *include* physical education in its scope. So we shall in time comprehend that medicine must and should include such methods as are now designated by the names "preventive" and "constructive" medicine.

And now as to "health education." Again we are in the situation wherein the term education is in the process of being extended to include a new function or method not heretofore understood to be within its scope. If we understand "education" to *include* the correction of faulty life-habits and production of desirable ones as a prerequisite to the full development of the physical endowment, we shall no longer need to talk of "health education." The term will naturally fall into disuse. But for the present we can understand that health education is one method utilized by constructive medicine in the performance of its function. The correction of physical defects is the other.

The full development of the physical capabilities and endowments is to be regarded as an essential part of education, inasmuch as it is through the physical organism that the mind must be reached. And through it the mind must express and impress itself upon the environment. So physical defects and faulty living-habits must be regarded as obstacles to the successful application of the educational method as a whole.

School Hygiene Conferences.—November fifth marked the close of the fourth consecutive annual series of school hygiene conferences conducted throughout the state by the state departments of education and public health. Attended by school nurses, physicians, superintendents as well as a certain number of teachers and members of school committees, they have served a double purpose. First, they have given those in attendance an opportunity to hear discussed in an authoritative way problems which vitally affect the well being of the school child; and second, they have made possible round table exchange of views as to the handling of troublesome administrative matters.

This year the program embraced a discussion of the sanitation of school houses and of vaccination and diphtheria prevention.

Survey of Thyroid Enlargement.—Massachusetts has hitherto taken it for granted that it has no goitre problem to speak of. Like many other things which are taken for granted without much effort being made to prove or disprove, this supposition may not be based on facts. At any rate, we are about to find out the facts. To this end, the Department of Public Health is fortunate in having the assistance of Dr. Oleson of the United States Public Health Service who will spend some time in this state making a survey of the situation. It will be interesting to contrast the percentage of thyroid enlargement in high school pupils in towns near the seacoast with that found in our Berkshire towns.

In connection with this study, the figures regarding the iodin content of drinking water obtained by the Division of Water and Sewage Laboratories will be of the greatest value.

School Hygiene at the American Public Health Association Meeting.—The recent convention of the American Public Health Association, held at St. Louis, brought out a worthwhile discussion of the medical supervision of the school child. For several years the Committee on School Health Problems of that Association has been studying phases of this subject, particularly methods of recording physical defects. There seems to be a somewhat general agreement of opinion among school workers that it should be possible to record physical defects in such a way as to be intelligible for purposes of comparison to any one familiar with school medical supervision.

The Committee on School Health Problems has been experimenting with the so-called modified Detroit Scale in the hope that this would serve as a point of departure for future agreement on a uniform system of recording. The difficulty has been to find school physicians who would take the time to record their physical examinations in duplicate, using the Detroit scale as well as their own scale. In a relatively small number of instances this has been done but the Committee is anxious to get a much wider response from school physicians all over the country. Those wishing to assist in this study can obtain blanks by writing to the Chairman of the Committee on School Health Problems, at 546 State House, Boston, Mass.

Another interesting subject relative to school health taken up at the American Public Health Association meeting was the question of the type of examination which should be given to a child in the public schools. Should it be the so-called pediatric examination which is the sort of examination which would be given by a pediatrician to a child coming to his office for the first time, which would involve the making of a diagnosis, or should it be the so-called "screening" examination which would have for its purpose the determination of any departure from the normal in a given child, for the purpose of referring him to his family physician for a more complete diagnosis. There is reason to believe that opinion is crystallizing in favor of the screening examination. The Committee on School Health Problems, however, will carry on further investigation with respect to this point.

Courses for School Nurses and Teachers

Plan of Courses.—In the summer of 1925 the State Departments of Public Health and Education again united to offer courses dealing with school health problems. In the main, the courses were conducted along the same lines as in 1924 but there were a few important modifications.

1. The session was lengthened to 6 weeks.
2. A course in School Hygiene, for teachers, was added.
3. A preliminary certificate was given to nurses completing Course I, and either Course II or III.
4. The group taking School Nursing I was not divided, as last year, into two sections
    - *a*) the advanced student
    - (*b*) the beginners

    but was taught as a unit.
5. The following electives were offered to students working for special recognition:
    - Physical Education
    - Psychology
    - Mental Measurements
    - Pedagogy
    - Immigrant Education
6. It was announced that special recognition would be given upon the completion of three elective and three required courses. (Previous courses in School Nursing at Hyannis counted toward a six-course certificate.)

The following was the enrollment of the course:

1. Teachers		20
2. Nurses		41
(*a*) New Students	28	
(*b*) Old Students	12	
(*c*) Out-of-state Nurses	8	
3. Oral Hygienists		4

Enrollment by Courses

School Hygiene	20
Principles of Health Teaching	26
School Nursing Procedures	27
Biology	9
Americanization	4
Psychology	4
Physical Education—I	8
Mental Measurements	4

DIAGNOSTIC SERVICE FOR TROPICAL AND EXOTIC DISEASES.

IN 1922 a notice was published about a new diagnostic service offered to physicians by the Department of Tropical Medicine of the Harvard Medical School. The purpose was to obtain material for teaching and to render service to the community through the physician. This work has been continued and the following statement is quoted from the original notice:

> "So far as the nature of the particular problem allows, final reports will be rendered on material sent to the Department of Tropical Medicine. When it is not practicable to make the diagnosis from material that can be sent, and the presence of the patient is necessary, unless the Health Department should deem it advisable to place the case elsewhere, the patient can be referred to the Service for Tropical Diseases at the Boston City Hospital where the necessary examination will be made either in the Out-Patient Department Tuesday mornings or after admission to the ward-beds of the Service for Tropical Diseases. The necessary diagnostic procedures will then be carried on either at the Boston City Hospital or at the Harvard Medical School through the agency of the Department of Tropical Medicine.
>
> "A list of diseases in regard to which the Department of Tropical Medicine is prepared to advise as to prevention or diagnosis is appended.
>
> "In a parallel column the appropriate laboratory methods of diagnosis are indicated.
>
> "Physicians are invited to write or to telephone to the Department of Tropical Medicine for information about its diagnostic service or about the best methods of obtaining material for examination."

During the interval since 1922 the Department of Tropical Medicine has added to its Staff, Drs. Joseph Bequaert, entomologist, J. H. Sandground, helminthologist, and very recently, L. R. Cleveland, protozoologist.

TROPICAL AND EXOTIC DISEASES.

(Italicized diseases have been found in Massachusetts.)

Section I. Protozoan Diseases.	Diagnostic Methods.
1. Malaria:	Examination of blood smears or fresh blood preparations.
Tertian.	
Subtertian.	
Quartian.	
2. Trypanosomiasis:	
African sleeping sickness.	Animal inoculations.
American Trypanosomiasis.	Examination of blood smears or fresh blood preparations. Spinal fluid.
3. Leishmaniasis:	
Kala-azar.	Animal inoculations.
Oriental sore.	Examination of scrapings from lesions.
American leishmaniasis.	Examination of sections of tissue.
4. Amœbiasis.	Examination of fresh fæces for amœba. Examination for cysts.
5. Infection with:	
a. Balantidium coli.	Examination of fresh fæces.
b. *Giardia intestinalis* (lamblia).	Examination of fresh fæces and culture.
c. *Trichomonas intestinalis* (cercomonas).	Examination of fresh fæces and culture.
d. *Chilomastix mesnili.*	Examination of fresh fæces and culture.
e. *Other flagellates.*	Examination of fresh fæces and culture.
Section II. Spirochetal Diseases.	
1. *Yaws.*	Examination with dark field of serum from lesions and of stained preparations.
2. *Relapsing fever.*	Examination of fresh blood preparations and stained smears. Animal inoculations.

SECTION II. SPIROCHETAL DISEASES—*Con.*	DIAGNOSTIC METHODS.
3. *Rat-bite fever.*	Dark field examination of fresh blood and of stained specimens. Blood culture taken.
4. *Infectious jaundice.*	Animal inoculations. Agglutination test with patient's blood. Urine examination for spirochætes.
5. *Yellow fever.*	Animal inoculations. Serum reactions. Examination of fresh blood and stained preparations.
SECTION III. BACTERIAL INFECTIONS.	
1. Plague.	Examination of blood cultures and cultures from material from gland puncture. Animal inoculations.
2. Tularense infection (deer fly fever).	Examination of cultures of blood and material from glands. Animal inoculations.
3. *Undulant fever* (malta fever).	Examination of blood cultures. Agglutination test.
4. *Bacterial dysentery.*	Agglutination test.
5. *Cholera.*	Examination of cultures from fæces. Agglutination test. Pfeiffer's reaction.
6. *Leprosy.*	Microscopical examination of nasal secretion and scrapings from lesions.
SECTION IV. OTHER INFECTIONS.	
1. *Typhus fever.*	Agglutination reaction of Weil-Felix. Pathological examination of skin—bedbug.
2. Rocky Mountain spotted fever.	Animal inoculations with blood.
3. *Inguinal granuloma.* 4. *Tropical phagedena.* 5. Veldt sore.	Examination of smears from lesions. Examination of sections of tissues.
SECTION V. MYCETOMA.	
1. *Madura foot.* 2. *Blastomycosis.* 3. Sporotrichosis.	Microscopical examination of fresh and stained preparations from lesions. Cultures from lesions.
SECTION VI. PARASITIC INFECTIONS.	
1. *Filariasis.*	
a. *Filaria bancrofti* (endemic elephantiasis.)	Examination of fresh and stained blood preparations.
b. *Filaria loa* (diurna).	Examination of fresh and stained blood preparations.
c. Onchocerca volvulus (filaria volvulus).	Examination of fresh and stained blood preparations and of sections of lesions.
2. *Distomiasis* (flukes).	
a. Paragonimiasis (endemic hemoptysis).	Examination of sputum for ova.
b. Schistosomiasis.	
1. *Schistosomum hematobium* (Vesical bilharziasis).	Examination of urine or fæces for ova.
2. *Schistosomum mansoni* (rectal bilharziasis).	Examination of fæces for ova.
3. Schistosomum japonicum.	Examination of fæces for ova.
c. *Clonorchiasis.*	Examination of fæces for ova.
d. Other liver flukes.	
1. Fasciolopsis buski.	Examination of fæces for ova.
2. Fasciola hepatica.	Examination of fæces for ova.
3. Uncinariasis (hookworm).	Examination of fæces for ova or parasites.
4. *Taenia infections.*	
T. Echinococcus.	Examination of pathological material. Agglutination test.
Diphilobothrium (fish tapeworm). *T. Nana* (dwarf tapeworm).	Examination of fæces for ova. Identification of parasites.
5. Strongyloides.	Examination of fæces. Culture for fæces.

SECTION VI. PARASITIC INFECTIONS — *Con.*	DIAGNOSTIC METHODS.
6. Myiasis. Of nose. Of ear. Of gastro-intestinal tract.	Examination of discharges and identification of larvæ.

SECTION VII. OTHER DISEASES OF INTEREST TO THE DEPARTMENT.

1. *Sporadic elephantiasis.*
2. *Heat-stroke.*
   Heat exhaustion.
   Siriasis.
3. *Beriberi.*
4. *Scurvy.*
5. *Pellagra.*
6. *Sprue.*
7. *Smallpox.*
8. *Dengue.*
9. Chigger disease.
10. Acarine dermatomycosis (red bug copra itch).
11. Oroya fever.
12. Verruga peruviana.
13. Japanese river fever (Tsutsugamushi fever).
14. Pappataci or phlebotomus fever.
15. Black water fever.
16. Drachontiasis (Guinea-worm disease).

TROPICAL SERVICE, BOSTON CITY HOSPITAL.

In connection with the foregoing, attention is called, in a letter from Dr. Dowling, Superintendent, to the fact that the Tropical Service at the Boston City Hospital under Doctors Shattuck and Horner is interested in extending the service it has been offering for the last four years. Patients can be admitted directly or transferred to the Service or examined on Wednesdays in the Medical Out-Patient Department by a member of the Tropical Service.

MATERNAL AND INFANT HYGIENE SECTION.

Notes on Our Well Child Conferences.

SUSAN M. COFFIN, M.D.

RECENTLY we have been studying a group of 1,879 children examined in the conferences and find that 79% show defects of one sort or another.

Almost half of the children over two years showed dental defects. In many of these children the teeth were in terrible condition. The causes seem to be poor prenatal and early childhood diet, neglect of home and dental care, and the habitual eating of store candy and other sweets. Toothbrushes before school age are conspicuous by their absence. Candy and ice cream are eaten between meals and in the evening, with great frequency. Lollypops and ice cream cones are "swapped" or shared with other children and even with the grown-ups in the family. (I saw one small youngster generously alternating "licks" with a fat puppy who eagerly waited his turn.) The sweets do not affect teeth alone. One mother brought Mary —— "to see if you can make her eat, she's so thin and never eats a good meal lately." Brief inquiry brought forth the information that Mary was having four ice cream cones a day, all between meals. This group of children with poor teeth frequently got almost no "chewey" foods. They had white cooked cereal, soft cooked vegetables, fresh white bread, etc. Many mothers still do not know that the "6-year molars" (which by the way, appear any time after four years) are permanent teeth.

The lack of dental care appears to be due to poverty, indifference, or lack of facilities. A surprising number of dentists refuse to care for first teeth. One mother had been to three dentists in as many towns, and met with refusal to do any work in each case. These dentists said there was "no use bothering with first teeth." Often a child who was not eating well, couldn't eat because his badly decayed teeth were too sensitive to stand chewing.

Ninety-two of the children examined were 10% or more underweight. A considerable number were between 7% and 9% underweight. Lower per cents of underweight were very common, which condition at this early age, and combined with various defects, should not be considered unimportant.

Forty-five children came from thirty families where there was, or had been, during the child's life, a case of pulmonary tuberculosis. These mothers were especially urged to have their pre-school children examined by the family physician every year even though apparently in good health, and to give the children good food and an open air life. In several cases the mothers had been well instructed in preventive care and were making every effort to carry out the directions given them.

Facts about breast feeding and prenatal care were hard to obtain as so many children came with relatives or neighbors. We do know, however, that 215 babies in this particular group had *no* breast feeding whatever, and that a large number had less than six months which seems today to be considered the minimum period necessary to give a baby a good start on nutrition.

In 413 cases there was no prenatal care whatever and a large group had less than six months care. Also, the type of care was superficial in many cases—only one urinalysis, no blood pressure, no complete physical examination (even in primiparas).

Poor posture would make a long story all by itself. Enlarged cervical glands, obstructive and diseased tonsils, adenoids, phimosis, skin and scalp diseases, strabismus, hernia, all appeared with monotonous regularity. Harmful habits, thumb sucking, nail biting, enuresis, etc., also came to our attention very frequently. Gross mental defects did not show up to any great extent, but of course we must remember that we are, as yet, making no routine mental tests.

(The number and per cent of the various defects will be stated later in the year's report.)

Following the conference an encouragingly large number of parents do make an effort to see their family physicians and have their children looked after. The local nurses have done some excellent work in helping to bring this about.

Twelve towns have established local Well Child Conferences following the demonstration conference given by the State Department of Public Health, and several more are planning to do so.

Towns Which Have Established
Well Baby Conferences
Following the State Conferences
1924–1925

Abington
Acushnet
Attleboro
Fairhaven
Hyannis
Lexington
Melrose
Methuen
North Attleboro
Salem
Wakefield
Webster

HIGH SPOTS IN THE MATERNAL AND INFANT HYGIENE STUDY COURSE.

It is cause for regret that not all of our readers were able to hear the words of wisdom from the able men who brought us, in the conferences for nurses, the latest word in the special fields of maternal and infant hygiene: Obstetrics and Pediatrics.

In order that those who did not hear these men may have some of the benefit of their experience, we offer a few telling remarks from notes taken at the time as high spots touched in the course of this series of conferences.

The conferences were held, as has been the custom, in nine different regions, in an endeavor to meet and talk over at least once a year with the nurses and with some of the directors of nursing organizations and a few interested physicians (we only wish their number were larger) the subjects of most vital interest in the work of mother and child conservation.

From the Pediatricians.

"A young infant must have three ounces of fluid to each pound of body weight."

"No artificial feeding can keep infant mortality and morbidity down to the level of breast feeding."

"Children that have been browned in summer stand the winter better; but those that are burned by the sun are made sick."

"The more a child is underweight the greater the calories per pound it needs. It may need 80 to 90 calories (normal 45)."

"The banana *when ripe* furnishes an excellent source of carbohydrate, when other carbohydrates are not tolerated. It is useful in coeliac disease."

"Measles—If immune serum can be administered within four days of exposure, it will be effective in preventing development of the disease. If delayed six or seven days after exposure, an atypical form is likely to develop."

— FRITZ TALBOT, M.D.

"The four most important factors in child hygiene are:

1. Education of the mother.
2. Prenatal care.
3. Nutritional problems.
4. Infectious diseases."

"Breast milk even though it does not make the baby gain much is frequently better than the best food we can produce otherwise."

"85% of the deaths among babies occur in those not breast fed."

"Boil all milk for young babies."

"Egg yolk (¼ teaspoonful a day) may be given at four months. If refused by baby in soft form, boil hard and grind to powder."

"When iron is needed, give:

Sunlight.
Beef juice (starting at 7–8 mos. in small amounts and increasing to maximum of 2 oz. at 10–11 mos.).
Spinach juice and chopped spinach.
Egg yolk.
Prunes.
Calf's liver."

"Orange juice (one teaspoonful daily) should be given to all bottle-fed children by the fourth week. To encourage water intake it should be given even to breast-fed children."

"In vomiting always keep watch of the intake of fluid."

"Every mother is capable of nursing her child. The belief that this is not true is responsible for many failures."

"Every bottle-fed baby should have cod liver oil.

Begin at three weeks with three drops at each feeding.
4 months—quarter teaspoonful.
6 months—half teaspoonful.
1 year—a teaspoonful.

Italians and Negroes even though breast fed should get cod liver oil, and anybody whose early feeding, whether breast or bottle, occurs in the fall, winter and spring months should get cod liver oil."

"A baby's formula should provide an average of 40 to 50 calories per pound weight."

"We are giving a more generous diet and varied in infancy than formerly. We are learning this from the slums."

"Diphtheria is under control. It is a crime against childhood not to enforce the administration of toxin-antitoxin."

"Rickets ordinarily does not develop in the presence of the summer's rays of sunlight."

"When should concentrated foods be given?

1. When there is not sufficient appetite to take enough to gain on.
2. When a child is sick or vomiting."

"For tuberculosis, sun is our best antidote."

"Toxin-antitoxin is one of the most important tools preventive medicine has given us."

"We are removing tonsils less and less. They are nature's laboratories for antibodies. There should be a definite indication for the removal of tonsils and adenoids."

—ELI C. ROMBERG, M.D.

"Solids given much earlier than formerly. Concentration of food stimulates stomach to contract and thus better empty itself."

"Early indications of rickets: *The Quintex.*

1. Ammoniacal urine.
2. Sweating head.
3. Pallor with hæmoglobin not lowered.
4. Flabby flesh.
5. Frequent urination."

"Lactic acid feeding is not a cure-all. It may be successful when other methods fail."

"Congenital hearts with cyanosis give bad prognosis. Without cyanosis they usually reach adult life."

—GARDNER COBB, M.D.

FROM THE OBSTETRICIANS.

"The education of a mother should not be left to her mother and the neighbors."

"Toxemia is the test of the efficiency of prenatal care."

"In the preparation of the vulva for labor, either do a thorough job or do nothing at all."

"Operative deliveries in the home are to be avoided."

"A coryza in nurse or physician may cause an infection at labor."

"There is a definite morbidity of about 4% following maternity."

"The death blow has been dealt to operative or local treatment for sepsis."

"Every mother should have postnatal examination to check up:

Subinvolution.
Retroversion.
Lactation.

85% show signs of damage."

—THOMAS ALMY, M.D.

"In most cases of persistent vomiting there is a marked neurosis. These patients do better in a hospital."

"I use forceps on most primiparæ as I believe I get a better perineum and save the mother pain."

"I seldom use pituitrin before birth but give it as a routine immediately after delivery of the child."

"A hospital should be large enough to isolate mothers with colds and their babies also."

—RICHARD BENNER, M.D.

"Serious vomiting in pregnancy practically always may be eliminated by early attention."

"Any woman who flows during pregnancy is entitled to thorough examination and should insist upon it."

"External measurements (of pelvis) alone may lead to false security."

"Every woman should have a pelvic examination when she starts in labor."

"Cæsarean section is going through second of three probable stages:

1. Regarded as a panacea.
2. Falling into some disrepute.
3. Its real value will be realized and it will be used properly. The nurses' influence will help bring about the third stage."

—JOHN B. SWIFT, M.D.

"Mothers are coming earlier than they did for prenatal care."

"In guarding against sepsis, it is important to know the history of previous illness, tendency to pus formation and focal infections."

"More than 12,000 cases have been conducted in six years without a death from eclamptic toxemia in those who had proper prenatal care."

—E. P. RUGGLES, M.D.

WITH THE NUTRITIONIST AT A WELL BABY CONFERENCE.

By Barbara Wilson, Nutritionist.

Kate Douglas Wiggin once said, "To cure is the voice of the past, to prevent, the divine whisper of today."

It is true that in nutrition work with infants and especially pre-school children we are beginning at an age in which habits are being formed, and our aim is to inculcate in these children as early as possible good food and health habits that they may have the preparation for the highest possible resistance to disease germs, bringing the best of health through childhood and adult life.

From my experiences as a nutritionist at "Well Child Conferences" I have gathered together some of the points which might well bear emphasis to mothers of infants and pre-school children.

Diet of the Infant

Regularity of feeding cannot be overstressed. Education in this respect has reached the vast majority of mothers, yet there are a great many who either through indolence or lack of realization of the practical importance still fail to use any vestige of a schedule.

The Massachusetts Department of Public Health has for free distribution printed diet slips for children from birth through school age. In sending for these, signify for what ages the diets are required. As far as diet in early infancy is concerned, the first six months are well taken care of, either through breast feeding or a formula prescribed by a doctor. Practically all mothers have been instructed in the use of orange juice by the family physician or baby specialist. In some cases where I find it is not being used I suggest beginning at five months in the breast-fed baby.

Strained cooked cereal, vegetable water, and later strained cooked vegetables are necessary for supplying needs of the body. It is generally recommended that well-cooked, strained cereal be added at six months. To begin, use one to two teaspoonfuls and gradually increase to one to two tablespoonfuls (in a little milk) at ten months.

At seven months a vegetable should be given. At first it is well to use the concentrated water in which a vegetable such as spinach, carrots, string beans, peas, etc., have been cooked for as short a time as necessary. Begin with one to two teaspoonfuls of the water strained off. Increase to one tablespoonful and in a month add strained vegetable pulp.

By the eighth month the baby should begin to learn to exercise his jaws and such teeth as he may have on a dry stale crust of bread daily.

There are still a number of mothers, especially among the foreign born, who continue to nurse their children until fourteen to eighteen months. This is a bad practice since mother's milk is not a sufficient diet for this age. The child becomes lazy and will not adapt himself to new foods which are more effort for him to take. This type of child often shows indication of malnutrition because he is not eating food to supply sufficient minerals and vitamins, the two food classes so necessary to the diet of the growing child, and contained in whole-grain cereals, fruit and vegetables, in addition to the milk.

Pre-school Age

The pre-school age is probably the period of the lowest average of good health. One reason for this is that the child receives no medical attention, unless he develops one of the popularly called children's diseases. In this period tonsils, adenoids, and nasal obstructions grow and become detrimental to the health of the child. Then again the child's meals in type are now similar to the adults' and he is taken to the table to eat. Naturally the child, loving to imitate, wants to eat food which the grown-ups have. The fond parent, to give pleasure to the child and often to amuse himself with the child's reaction, weakens. As a result, gradually the child acquires a taste for rich spicy foods and grows away from the simple nutritious meals. This change takes place so slowly that often the parent does not realize it. The best way to overcome this state of affairs is to feed the small children before or after the meal time. As a result, until their meal is similar to that served at the table, the mother is more free to give attention to their eating without being continually disturbed from her own meal and the children are not subjected to temptation from food on the dining table. Often the tea and coffee habit is started with tastes as early as two years old. The taste, although it does no good, is not as harmful as the mental suggestion that tea and coffee is a drink for children. Children always have a fondness for the food which is generally forbidden them, and it so on becomes increasingly difficult to deny tea and coffee to children when they have been given occasional tastes.

A Few Fallacies about Food

It may well be said of most of the health knowledge of mothers; not that they are so ignorant, but they know so many things that are not so; for example, here are a few of the statements made to me by different mothers.

1. Toast dries the blood.
2. Dry toast is constipating.
3. Berry seeds cause appendicitis.
4. Cocoa "coats" the kidneys.
5. Oatmeal is heating to the blood and should never be eaten in the summer.
6. Fruit and milk taken together curdle in the stomach and poison the blood.

These statements are the science of the laity. A great many mothers cannot explain them only to say that they have been handed down to them.

1. The statement that toast dries the blood is not rational, because toast, being chiefly carbohydrate, is changed into a simple sugar before being absorbed by the blood. Any one still not convinced if he makes sure that he drinks at least four cups of water a day need not worry about his blood drying up.

2. "Dry toast is constipating" may have its background in the fact that it is a non-laxative food. If non-laxative food only is in the diet, constipation is likely to result. Therefore, be sure to use laxative foods every day, as fruit, vegetables, whole grain breads and cereals.

3. Berry seeds have been found in the appendixes of individuals operated on for appendicitis, but it is generally considered that they are not the cause, but that they found their way there because of the inflamed condition of the appendix.

4. That cocoa "coats" the kidneys would seem impossible, because cocoa is digested before it reaches the kidneys. As far as we know, it contains nothing in it which is known to coat the kidneys.

5. The blood cannot be heated by oatmeal or any other foods. In health the blood has a normal temperature, 98.6°, and evaporation from the body takes care that it does not go above that temperature.

6. The fact that fruit and milk taken together curdle in the stomach is perfectly true. Indeed it is part of the digestion of milk to sour in the stomach because the stomach contains an acid which causes curdling. Now the combination of berries, citrous fruits, peaches and apples with milk is considered a perfectly good combination. Nearly every baby receives orange juice daily in combination with a milk diet.

Health Habits

Sleep

The pre-school child needs from twelve to thirteen hours' sleep every night as much, if not more, in the summer than in the winter, because the child, being out-of-doors more, plays harder and becomes over-tired.

Naps

Mothers as a rule give up the daily nap from two years on. The pre-school child needs and should have a nap every afternoon until he goes to school. It is perfectly possible to carry this out if the nap is made part of the day's program and is insisted upon.

The nap should vary in length from one to two hours, one hour for the child from four to six and two hours for the child under that age. Even if a child does not sleep he needs the quiet rest. This rest should be continued even in the first year of school if the child attends only a morning session.

Brushing Teeth

The child's teeth should be brushed as soon as they begin to come. Many mothers do not realize the importance of taking care of the child's first teeth. Good care of the first teeth insures good second teeth. In choosing a toothbrush for the child be sure to select one with soft bristles so that the brush will not irritate the gums.

HAVE YOU READ—

Universalizing Breast Feeding in a Community. By F. H. Richardson, M.D. (*Journal American Medical Association*, 370 Seventh Ave., New York City. August 29, 1925, issue).

A summary of the procedure and results of the breast feeding demonstration in Nassau County, N. Y. Of the 2,815 babies studied, 70.1% were breast fed at least six months. The infant mortality of this group was 49 as against 64 for the county as a whole. A comparison of the morbidity of babies nine months breast fed with those having less than that amount of breast feeding showed that only one eighth of the former group became sick as against one third of those prematurely weaned. In diseases of the digestive tract the ratio was 3 : 1 in favor of breast fed. A prevalence of pneumonia and bronchitis occurred among babies with limited breast feeding. They were also more susceptible to the infectious diseases.

"The idea is spreading among the medical men that the maintenance of breast feeding requires every bit as much scientific knowledge as does the making of formulas for artificial feeding. Only when this idea becomes general will breast feeding come into its own."

"It is unnecessary to remind any one familiar with infant feeding today that the main points of the technique are the manual expression of the mother's breast after nursing, and the giving of complementary feedings whenever the amount of breast milk secreted is insufficient, the amount taken to be decided by the baby himself."

Sunlight for Babies. By Martha M. Eliot, M.D. (*Child Health Bulletin*, published by the American Child Health Association, 370 Seventh Ave., New York City. June, 1925, issue.)

In the campaign for better babies more stress must be laid on sunlight. Its power in the prevention and cure of rickets has been demonstrated. To obtain the beneficial effects the sunlight must reach the skin directly. Much clothing or window glass keep out the ultra-violet rays. Outdoor sunbaths may be given by the middle of March if the baby is protected from the wind. They should begin when baby is 3 to 4 weeks old. The procedure is to expose the cheeks and hands the first day for a few minutes. Each following day increase slowly the time and amount of body surface exposed until the baby lies directly in the sunlight one hour morning and afternoon.

In the winter indoor sunbaths may be given between 10 and 1 o'clock (when the rays are most intense) before a sunny open window. Babies born in the fall and winter need long indoor sunbaths as they are more apt to develop severe rickets than those born in spring or early summer.

Bovine Tuberculosis and Its Relation to Public Health. By E. C. Schroeder (*Child Health Bulletin*, published by the American Child Health Association, 370 Seventh Ave., New York City. June, 1925, issue.)

Quoting Dr. W. H. Park of New York City, the estimate is given that with the average milk supply about 10% of all deaths from tuberculosis in pre-school children are due to bovine infection. This infection is received mainly or wholly through milk from tuberculous cows. Pasteurization is a protection against bovine tuberculosis. This should be supplemented by the eradication of tuberculosis from dairy herds.

The "Summer Round Up of the Children." (*Child Welfare Magazine*, 770 Lincoln Drive, Chestnut Hill, Philadelphia, Pa. September, 1925, issue.)

According to a tabulation made by the Department of the Interior, Bureau of Education, one half of the more than 4,000,000 children entering the first grade each year fail to make the second grade. The Bureau of Education and the National Congress of Parents and Teachers are co-operating in an intensive campaign to have children 100% perfect in body and mind before entering school next September. Certificates will be awarded associations carrying through this campaign.

The Pre-School Child. By E. J. Huenekens, M.D. (*Journal American Medical Association,* 370 Seventh Ave., New York City. August 15, 1925, issue.)

The writer asserts that the emotional life of the pre-school child is of even more importance than the physical. The cause of emotional disturbances in this period lies frequently in the environment.

In general children are of two types: The timid, shrinking, invert type; and the eccentric, domineering type. The former should be encouraged and praised, punished carefully if at all; initiative should be encouraged and fears calmed. In dealing with the latter, firmness is required to control exuberant tendencies; punishment should be given judiciously, but not in anger.

Habit problems are important because of the effect on the physical life of the child and on his emotional, mental, and social life in later years. Two outstanding bad habits affecting the body are poor sleeping and poor eating. Rules are given for dealing with the child who will not eat.

Child Management. By Douglas A. Thom, M.D. (*Children's Bureau,* U. S. Department of Labor, Washington, D. C.) Free.

Nutrition Work with Pre-School Children. By Hanna (*Children's Bureau,* U. S. Department of Labor, Washington, D. C.) Free.

BOOKS ON PUBLIC HEALTH AVAILABLE BY INTER-LIBRARY LOAN.

Librarians are reminded that books on nursing, public health work, tuberculosis, health education, etc., may be obtained on inter-library loan from the Boston Medical Library, 8 The Fenway, Boston; the Massachusetts Tuberculosis League, 1150 Little Building, Boston; or the National Health Library, 370 Seventh Ave., New York City; or the Division of Public Libraries will endeavor to obtain such books on request from libraries. In all cases postage both ways must be paid.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of July, August and September, 1925, samples were collected in 156 cities and towns.

There were 1,790 samples of milk examined, of which 705 were below standard, 40 samples had the cream removed, and 50 samples contained added water.

There were 339 samples of food, of which 58 were adulterated. These consisted of 44 samples of clams which were watered; 2 samples of vinegar which were low in acid; 5 samples of butter which were rancid; 5 samples of fish which were decomposed; and 2 samples of soft drinks which contained saccharine.

There were 60 samples of drugs examined, of which 15 were adulterated. These consisted of 4 samples of nitrous ether, 1 sample of essence of peppermint, and 10 samples of lime water, all of which were deficient in the active ingredient.

The police departments submitted 2,756 samples of liquor for examination, 2,682 of which were above 0.5% in alcohol. The police departments also submitted 24 samples of poisons for examination, 9 of which were opium, 8 morphine, 2 heroin, 1 cocaine, and 4 samples were examined for poison with negative results.

There were 2 samples of coal examined, 1 sample conforming to the law, and 1 sample contained an unreasonable amount of impurities.

There were 20 hearings held pertaining to violations of the Food and Drug laws.

There were 41 convictions for violations of the law, $960.00 in fines being imposed.

Frank W. Cowing of Weymouth; Frank Dorsey of Erving; Basillos Efstathion, Camello Fazzi, Harry M. Green, Edward Malnoski, and George Pappas, all of Holyoke; Daniel J. Dineen and Nisham Tashjian of Springfield; Nicholas Colas of Plymouth; Arthur Foisy of Cheshire; Jacob Gexler of Gill; William J. Jeffries of Orange; Clarence E. Kent of Marshfield; Silvio Ottani of South Duxbury; Krikos Barmakian of Oak Bluffs; Mike Rezinewicz, George S. Antipas, Waldorf System Incorporated, John G. Lampris, Frank Moore, Angelos Pollakes, and Peter Yannakopoulos, all of Cambridge; George E. Antunes and Ralph Gallugi of Wakefield; William Barkas and Morris Cohen of Wellesley; Harry E. Smith of South Williamstown; William A. Vickery, 2 cases, of Attleboro; John Katowski of West Brookfield; and Bertram J. Hibbard of Hardwick, were all convicted for violations of the milk laws.

The Great Atlantic & Pacific Tea Company, Incorporated, and Karl Kaplan, of Pittsfield; and Arthur M. Argeros of Peabody, were all convicted for violations of the food laws.

John R. MacTavish of Cambridge was convicted for violation of the drug laws.

Samuel Friedman of Attleboro was convicted for putting paris green in a can intended to be used as a milk container.

Albert W. Fisher and Earl L. Fisher of Waltham were convicted for violations of the sanitary food law.

Albert W. Fisher and Earl L. Fisher of Waltham were convicted for operating a soft drink factory without a permit from the local board of health.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 13 samples, by William A. Vickery of Attleboro; 7 samples, by B. J. Hibbard of Gilbertville; 5 samples, by Emil Fugman of Pittsfield; 4 samples, by Manuel J. Rogers of Oak Bluffs; 3 samples, by Harry Smith of South Williamstown; and 1 sample, by Axel Nelson of Pittsfield.

One sample of milk which had the cream removed was produced by Paul T. Winkley of Newburyport.

One sample of vinegar which was low in acid, was obtained from J. P. Thather of Littleton.

Two samples of soft drinks which contained saccharine were obtained from Berkshire Mineral Bottling Company of Pittsfield.

There was one confiscation, consisting of 275 pounds of decomposed beef.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of June, 1925: 2,621,310 dozens of case eggs, 1,167,009 pounds of broken out eggs, 7,191,449 pounds of butter, 1,082,434, pounds of poultry, 4,392,097 pounds of fresh meat and fresh meat products, and 5,041,203 pounds of fresh food fish.

There was on hand, July 1, 1925: 14,543,820 dozens of case eggs, 2,125,245 pounds of broken out eggs, 7,228,058 pounds of butter, 6,870,285 pounds of poultry, 14,834,026 pounds of fresh meat and fresh meat products, and 10,478,859 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of July, 1925: 1,530,330 dozens of case eggs, 753,092 pounds of broken out eggs, 8,607,549 pounds of butter, 908,273 pounds of poultry, 3,968,352 pounds of fresh meat and fresh meat products, and 4,943,704 pounds of fresh food fish.

There was on hand August 1, 1925: 14,971,110 dozens of case eggs, 2,514,614 pounds of broken out eggs, 14,572,162 pounds of butter, 6,176,717 pounds of poultry, 12,417,903 pounds of fresh meat and fresh meat products, and 14,279,378 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of August, 1925: 1,102,800 dozens of case eggs, 790,444½ pounds of broken out eggs, 4,801,590 pounds of butter, 547,420 pounds of poultry, 2,097,942 pounds of fresh meat and fresh meat products, and 3,706,761 pounds of fresh food fish.

There was on hand September 1, 1925: 14,389,710 dozens of case eggs, 2,817,750 pounds of broken out eggs, 17,628,728 pounds of butter, 5,101,611 pounds of poultry, 9,491,923 pounds of fresh meat and fresh meat products, and 16,825,453 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

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DEPARTMENT OF PUBLIC HEALTH

GEORGE H. BIGELOW, M.D., COMMISSIONER

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THE FIRST YEAR OF THE TEN-YEAR PROGRAM

By Henry D. Chadwick, M.D., Chief of Clinics, Division of Tuberculosis, Massachusets Department of Public Health.

NOW that the first year's work of the Ten-Year Program has been completed, it may prove of interest to note the several changes that it was found necessary to make in perfecting the organization of the State Clinic for the examination of the Underweight School Children.

Personnel of the Unit.

In October, 1924, this consisted of one physician acting as Chief of Clinics, four examining physicians, two nurses, two stenographers, four nutritionists and one technician with a portable X-ray machine. It was soon found necessary to add a nurse to act as a Field Agent. Her duty was to consult with the local authorities for making preliminary plans, and to instruct the local nurses in the things necessary to be done before the arrival of the Clinic to make the examinations.

Two additional stenographers were later found necessary in order to type the reports that were made to the parents of each child and to the School and Health Departments. At the end of the year, therefore, the Clinic Unit consisted of five physicians, three nurses, four stenographers, four nutritionists and one X-ray technician. More nurses and more typists than anticipated were found necessary for the economical functioning of the unit.

We planned to examine one hundred children daily, but found it was impossible for our physicians to keep up this average for these reasons:

It was seldom that the daily quota of children could be found in one school building. This necessitated a change of location for the unit, as our original plans were to examine the children in their own school building. Time was lost in making these shifts and the working hours were limited to the regular school period. The latter part of the year, wherever possible, we selected a central school building for the examination and the children from the neighboring schools were brought in as the doctors were ready for them. This was most satisfactory, both for the examiners, who lost less time in travel or in waiting, and for the school authorities, who were able to assign rooms in the large buildings with less disturbance to the school routine.

THE EXAMINERS.

The physicians selected for this important work were as follows:

Doctor George M. Sullivan
Doctor David Zacks
Doctor Charles S. Millet
Doctor Frederick H. Gebhardt

These men all had extensive Sanatorium experience, in addition to a period of training in the Westfield State Sanatorium in the diagnosis of Juvenile Tuberculosis.

A physician can easily make the physical examination on thirty children in a five-hour day when he can give his undivided time to this work. There are, however, other things that have to be done. When three men are examining, it will keep one other doctor busy doing the Von Pirquet tuberculin test. Then again, one doctor must be detailed to record the results of the skin tests as often as the occasion requires. Each child has to be seen on the third, fourth or fifth day to note the result of the test. It is obvious, therefore, that each of the physicians in the group can not average the maximum number of examinations per day. The Chief of Clinics found little opportunity to be with the Clinic, because he was occupied much of the time in interpreting X-ray films and dictating reports on the children examined.

PUBLICITY.

The Chief of Clinics also accepted all the opportunities that were offered to speak before medical societies and other organizations. From October to July he made fifty addresses on some phase of juvenile tuberculosis to different groups of people, made up largely of physicians, teachers and public health workers. Four different groups of doctors, averaging ten each, were given three days' instruction at the Westfield State Sanatorium on the diagnosis of hilum tuberculosis. Talks to teachers are given in every city and large town before the Clinic begins. By so doing, they understand why the Clinic is being held; that its purpose is to find the children who have an early and easily curable form of tuberculosis; that it is a plan by which the more serious forms of this disease can be prevented from developing in later life; and they heartily co-operate in every way that they can. They urge the parents to have their children examined and by their continued interest in the children found in need of supervision or treatment, aid effectively in getting the recommendations carried out.

DIAGNOSTIC STANDARDS.

Diagnoses are arrived at by the consideration of the history, symptoms, physical examination, tuberculin test, X-ray and elimination of other conditions simulating tuberculosis. The family and personal history and symptoms are recorded by the local nurse from information obtained from the parents when she visits the home to get the signed request for the examination. The physician records on the same blank any defects or abnormalities that he finds at the time of the examination. The result of the tuberculin test and the interpretation of the X-ray film are also entered on this blank.

Our original plan was to do the tuberculin test and X-ray those that were considered "suspects" by the physician as the results of his physical examination. We soon found, however, that quite frequently children were X-rayed and later found negative to the tuberculin test. Therefore, the plan was changed and since then all children were given the Von Pirquet tuberculin test at the time of examination and later only those who reacted to this test were X-rayed. Rarely, an exception was made to this rule, but where the examiner found some unusual physical sign, he requested an X-ray of the chest, regardless of the result of the tuberculin test.

CLASSIFICATION.

The record blank used in the Clinic is planned to show in detail all the information that can be obtained, bearing on the factors above mentioned. A careful consideration is then given to each case and the children are placed in some one of the following groups, namely:

Pulmonary (Active or Latent)
Hilum (Active or Latent)
Suspect
Negative

The latent cases are those where the X-ray shows definite tuberculosis lesions but where there are no symptoms indicating active disease and the child appears to be in excellent health. We feel that these children should be kept under careful supervision, as their lesion is so recent that it might become active at any time.

WORK ACCOMPLISHED.

The examinations began in Springfield in October, 1924, and Clinics were held in other cities and towns in the following order:

Springfield, Ware, Malden, Newton, Fall River, Pepperell, Billerica, New Bedford, Rehoboth, Swansea, Somerset, Westport, Acushnet, Middleboro, Wareham, Mattapoisett, Fairhaven, Plymouth, Arlington, Wakefield, Wilmington, Uxbridge, Milford, Belmont, Medway, Randolph, Avon, Medfield, Walpole, Foxboro, Plainfield, Canton, Gloucester, Lawrence, Methuen, North Andover, Beverly, Mansfield, Attleboro, Norwood, Tyngsboro, Dunstable and Stoughton. In some towns, small groups who were examined the year previous by a physician from the State Department of Public Health were re-examined. No attempt was made to carry out the comprehensive plan used in the regular Clinic under the Ten-Year Program.

These re-examinations were made in the following places:

Reading, Topsfield, Everett, Chelmsford, Littleton, Salisbury, West Newbury, Merrimac, Amesbury, Hudson, Maynard, Acton, Wayland, Watertown, Bridgewater and East Bridgewater. Detailed statistics will be found in another paper.

Comparing the actual figures with estimates made last year from experience in small Clinics, we find the following:

Estimate		*Actual*
Hilum Tuberculosis	8%	5.1%
Suspect	27%	12.8%

The reason for this difference is that we have been more conservative in making positive diagnosis. This accounts for the difference between 5% and 8%. The cases called "Suspects" in previous years were so classified on the conditions found by physical examinations and consideration of symptoms. This year the tuberculin test and X-ray have been used as a routine and this has resulted in eliminating 17% from this group. The signs and symptoms were due in these cases to other causes. It would seem, therefore, by consideration of the five factors, namely, symptoms, physical signs, tuberculin test, X-ray and elimination of other causes that we can discover all the cases of tuberculosis that are in need of treatment and that diagnosis made in this way can be defended from adverse criticism.

I wish to record my appreciation of the hearty co-operation which the Clinic has received from the health and school authorities in the different cities and towns. The teachers everywhere have shown great interest in this program for preventing tuberculosis. Their enthusiasm for the physical welfare of the children in their classrooms supplements in a most effective way the earnest efforts of the public health nurses.

PREPARATIONS FOR THE CLINIC.

By Katherine O'Connor, R. N., Clinic Field Agent, Division of Tuberculosis, Massachusetts Department of Public Health.

AFTER a city or town has officially requested the Clinic on forms provided by the Department of Public Health, and the approximate date of the Clinic arrival has been determined, the Clinic Field Agent and the District Health Officer call on the School and Health officials. They go over with them the necessary preliminary work and the Field Agent can explain in detail the steps necessary for the proper functioning of the Clinic. As much time as is possible is allowed for this preliminary work. Too much emphasis cannot be placed on the value of a perfect understanding between the Field Agent and the local workers. Through the experience gained in preparing for Clinics in many cities and towns of the State much help may be given as to the best methods of obtaining histories or the consent of the parents to have their children examined.

A speaking date is arranged with the Superintendent of Schools so that Dr. Chadwick may meet the entire teaching staff and explain the Ten-Year Program and the reasons for the preliminary work in the schools. At this time Dr. Chadwick has a chance to explain to the teachers the important part which they play in the follow-up work.

The definite date for the actual Clinic can only be given when the preceding city or town can give the definite number of children to be examined. This decides the length of time the staff will be required in that particular place. Under ordinary circumstances around 130 children can be examined in a day — 70 in the morning and 60 in the afternoon.

Types of Children to be Examined.

There are three groups of children which should be selected for examination, including those in the elementary grades of both the public and parochial schools.

1. Children who are found to be 10% or more below the accepted standard for height and weight for age. This can be readily computed from the tables which are furnished by the Department. This will comprise the largest group of children to be examined.

2. The contacts — by this we mean children who have been exposed to an open case of tuberculosis in the home or elsewhere. This is a very important group and many of these may be found from the board of health records. It should be borne in mind, however, that many actual adult cases are not reported and especial care should be taken in obtaining the past histories of the adult members of the family.

3. The third group includes children who are not up to grade in school but who are frequently absent because of illness, and others recommended by the school authorities for some special reason.

Weighing and Measuring.

Of primary importance in weighing and measuring children are scales that are absolutely correct. The nurses are usually requested to have the local sealer of weights and measures test the scales. All outer clothing should be removed, such as coats, sweaters and shoes. The children are instructed to stand in the middle of the scales to obtain even balance, and to step lightly on the scales, as they are easily put out of order.

The usual method of obtaining the height of a child is to have him stand back to a wall in an erect position. The height is then determined from the measuring tape attached to the wall. This method is found to be much better than to use the measuring rod on the scales, as the child may stoop so much as to cause an error of an inch in computing the percentage of underweight. The underweight reference tables used in the Clinic are those prepared and published by the American Child Health Association and distributed by the State Department of Health. The nurses are advised to do the computing of percentages after school hours. The advantage of this method is that there are not likely to be so many mistakes as in the classroom when other things are going on. Again, it speeds up the work, and lessens the time the children are absent from their rooms.

Experience has shown that the group finally selected for examination will show about 15% of the school population. This does not include the high school pupils.

HOME VISITING FOR HISTORIES AND CONSENTS.

When all the children are listed who should be examined the nurse is instructed to visit the home, explain the program to the parent and obtain a written request from the parent or guardian. This often requires considerable tact and a knowledge on the part of the nurse of the difference between hilum and pulmonary tuberculosis. When this glandular type is thoroughly explained to the parents very little objection is made. Parents are urged to be present with their children during the examination.

Experience has proven that a private conference with the parent is much better than sending the consent slips home with the children. Parents often object to the publicity of the latter method, and many of the slips sent are lost by the children. Again, other members of the family, as well as neighbors, help to prejudice the parents against the examination. This is not likely to be the case when brought to the attention of the parent in an intelligent manner.

CHECKING UP AND ARRANGEMENT OF HISTORIES.

After the nurses have completed their home visits it is advisable that the Clinic Field Agent confer with each nurse to check up on the histories, as often through haste or misunderstanding questions are left unanswered. The legibility of names and addresses is also checked. To simplify the work of the nurse the day of the Clinic, she is advised to file her histories in the following manner:

1. According to buildings; as it often happens that more than one school group comes to a centralized building. This insures a day's work for the Clinic group without shifting.
2. According to sex; as the boys and girls are examined separately.
3. Histories should be alphabetically arranged according to the last name of the child.
4. The approximate hour for the examination of each child should be estimated, and this information given through the teacher to the child, in order that the parents may be present if convenient for them. This notification is usually given twenty-four hours before the examination.
5. All histories should be completed prior to the arrival of the Clinic staff as no nurses will be available at the Clinic for taking histories. The nurses are asked to get the following statistics: Population of school children minus the high school; number of underweights, contacts and specials which should be examined; and the number of consents actually obtained.

CLINIC SPACE REQUIRED.

About a week previous to the arrival of the Clinic staff the Field Agent, with local nurse, visits the various buildings chosen by the local nurse for this work. The most centralized school buildings are chosen, where the proper space may be obtained, and to which 130 children can be most easily transported without too much inconvenience to the mothers and children. It is suggested to the local people that as few shifts as possible should be made necessary for the Clinic staff. This should not occur oftener than once a day, as the changing entails much additional work and the loss of considerable time. The convenience of the mothers and children and the elimination of as much disturbance as possible to the school routine should always be kept in mind.

THE PROCEDURE AT THE CLINIC

By George M. Sullivan, M.D., Assistant Chief of Clinics, Division of Tuberculosis, Massachusetts Department of Public Health.

BEFORE discussing in detail the procedure of the State Clinic it will first be necessary to write briefly concerning the personnel of the Clinic group. At the present time this group consists of seven physicians, which includes the Chief of Clinics and the six examining physicians, three nurses, three nutrition workers, four stenographers and an X-ray technician. Of this group one nurse is engaged in advance work; one doctor, one nurse and one nutrition worker in the follow-up work. Exclusive of these mentioned the remainder of the group is engaged in the examinations and in writing reports and records in reference to this work.

After the advance work for the Clinic has been accomplished such as weighing and measuring the children, obtaining histories and consents from the parents of those children who are to be examined, and the date set, the Clinic group is sent into that city or town to begin its work.

Day's Schedule.

The schedule for any one day's work calls for the examination of one hundred and thirty children, seventy being cared for in the morning and sixty in the afternoon. Each physician is able to examine approximately thirty children a day allowing an average of ten minutes to each child, which has proven time enough to permit the examiner to do his work thoroughly and not to be hurried. In order to examine this number of children and to do the work efficiently, speedily and systematically it is necessary to have four large rooms similar to classrooms placed at the disposal of the Clinic group. One room is to be used as a dressing room for the children; one for a weighing and measuring room; one room where the examinations can be made, and a room for the nutrition workers and for the children to remain in after the skin test is done.

The children who are to be examined are usually assembled in the waiting room, accompanied by their parents, about nine o'clock. It is usually arranged for one sex to come at a time (great care always being taken so that children of both sexes are never together at any one time during the examination). The children then are sent to the dressing room in groups of five or ten, where the school nurses remove their clothing to the waistline and drape them very carefully with a white cotton tape in preparation for the physical examination.

The children are then sent into the next room, where a nurse will take the temperature, weigh and measure each child in order that the percentage below weight can be determined. This weight and height together with what the average weight of a child at that age and height should be and the temperature are then entered on the history sheet and also on an examination record sheet. This examination record sheet is to be given to the parent following the physical examination when all the defects found by the physician and his recommendations have been entered upon it.

The Physical Examination.

The child is now ready to go into the examining room, where five doctors are usually working. It is at this point that the presence of the parent will aid greatly the efficiency of the work done by the physician. It is always urged and hoped that as many parents as possible will accompany their children to the Clinic, for in many instances questions arise concerning the child that could be fully explained were the parent present. The first step in the examination consists of an inspection of the general condition of the child, whether good or poor, as posture — erect or fatigued; skin — normal or if rashes are present; the muscles — firm or flabby; the eyes are examined for opacities, ulcer or conjunctivitis; discharging ears are also noted; goitre — large or small is noted; mouth breathing, and tonsils and adenoids; condition of the teeth, cervical glands — location and size; condition of the spine also comes under inspection. Percussion of the chest is the second step in the physical examination in which paravertebral dullness is looked for; auscultation follows in which rales, changes in the breath sounds or heart murmurs are noted. The results of the physician's examination are then recorded on the history sheet. The child is now assisted in dressing by a second Clinic nurse and directed to the physician doing the Von Pirquet test. Koch's old tuberculin purchased from the Saranac Lake Laboratory is used in all of these tests. It is recommended that all children that come for examination receive this test as the reaction, whether negative or positive, is one of the cardinal points in the final diagnosis. The right arm is selected for the test; it is cleaned thoroughly with alcohol and only one scarification made. Rarely is a child frightened, and seldom is there any objection to the test from the parent.

The child now goes to a second stenographer, who completes the examination record sheet that was begun in the weighing and measuring room. Any defects that the physician has noted and his recommendations are copied on the examination record sheet and this is given to the parent if present, if not to the child to be carried home.

After receiving this recommendation sheet the child is now ready to enter room number four, where the nutrition workers are on duty. As the detail of their work will be explained in another article it is not necessary for me to discuss that phase of the Clinic in this paper. However, in this room it is necessary for the child to remain at least half an hour under supervision in order that the arm may dry thoroughly so that the technique of the Von Pirquet will not be impaired. After the arm is thoroughly dry the child is permitted to go to his home or back to his classroom. The entire procedure up to this time requires approximately forty-five minutes.

LATER PROCEDURES.

On the third to fifth day following the examination and the skin test one of the Clinic physicians revisits the school for the purpose of reading the arms. The reading is entered as one plus, two plus and three plus according to the degree of reaction of the test. It has always been the custom of the Clinic to read every arm upon which a test has been done so that when a child is absent from school the home is visited, consequently a child is rarely ever missed. Up to the time of this paper no serious results have ever been reported from the skin test. As soon as practicable after the reading of the arms, plans are made for the taking of an X-ray examination of the chest of every child who reacted to the skin test as well as a few special cases which the examining physicians have requested. This is done by the means of a portable X-ray machine which is taken to the school. It is possible in this manner to take from seventy-five to one hundred films in a day. These films are sent to the Westfield State Sanatorium, where the X-ray technician develops them and gets them ready for interpretation by the Chief of Clinics. As soon as the plates can be interpreted reports are sent out for the benefit of the parents, family physician and school nurse, which is usually about three weeks after the examination; thus completing the last procedure of the Clinic.

In discussing the procedure of the State Clinic the writer has tried to bring out the important details, as the space allotted for this article does not permit a minute analysis of each procedure of the Clinic.

THE CLINIC FROM THE NUTRITIONIST'S POINT OF VIEW.

By Emma L. Wetherbee, Assistant Nutritionist, Division of Hygiene, Massachusetts Department of Public Health.

THE statement, "You can lead a horse to water but you cannot make him drink" would be appropriate to express the feelings of the mothers with whom the nutritionist holds her individual consultations in the Clinic for underweight children.

Daily the same appeal comes from the mother discouraged because in spite of her efforts the school report continues to class the child as underweight. "I just can't make Johnny eat. He hasn't any appetite. Won't you tell him what to eat? I am sure if you tell him he will feel he must do it. He pays no attention to me."

Oversolicitous oftentimes; willing to substitute for unliked the better-liked food; threatening; bribing to gain her point; "eating her heart out" as one mother said, because of lack of response on child's part; handicapped because of lack of knowledge of essential food and habit training of her child; the mother welcomes the opportunity which the Clinic offers for talking over her individual problem and for securing health literature which supplements the Clinic recommendations.

Training of the child, like training of an animal, should begin at a very early age and continue through adolescence if right habits are to be followed through life. Patience, perseverance and active supervision are necessary from the start. When the case is one of redirecting faulty habits, as in the majority of cases found in the Clinic, these attributes are indispensable. The responsibility for supervision falls naturally to the mother. She will need to fortify herself with health information to meet the child's questions with convincing answers. This information will strengthen her position and overcome the helplessness so evident in the often-repeated answer regarding an essential food, "but he does not like it." So often that is the end of the situation with her and the child's whim rules. Her present knowledge of ways and means of serving an unliked food in a more attractive way with no suggestion of its possibly not being liked is limited. "Cooking for Health," a booklet which each mother receives at the time of the talk with the nutritionist, is very popular in consequence. "Is This Your Child" considers the child who is especially hard to feed.

The nutrition recommendation card used in the Clinic is divided into sections for recommendations regarding milk, eggs, cereal, bread, tea or coffee, vegetables, fruit, meat, water, candy, breakfast, sleep, sleeping conditions, open windows, rest periods, brushing teeth, bathing, constipation, posture and general remarks. Only those sections are filled in where special attention is needed. A certain few habits are outstanding as in need of correction.

Breakfast.

Good breakfasts are in the minority. The child is allowed to leave home with no breakfast or with a cup of cocoa, milk or, far too often, coffee or tea, supplemented sometimes by toast or bread and butter, but as often not.

Cooked cereals are not popular, those most advertised and ready-to-eat rank first. The mother's knowledge of cooked cereals other than oatmeal is limited apparently for the list of whole grain cooked cereals surprises her.

Milk.

There are seldom children found in the Clinic who do not get any milk. By some it continues to be considered a luxury, but they do get at least one cup, doubtless because of health teaching in the schools. Those not getting milk at home do get the mid-morning milk in school as a rule.

The idea that 4 cups of milk must be taken as a beverage is very common. It relieves the mother to be told it can be used in cooked food, on cereals, in cocoa, etc. It may be that milk has at times been over emphasized for the mother often allows the child to substitute milk for any food he does not particularly like. He will take milk rather than a food which needs mastication and so it is found he is utilizing space for liquid when his body requires more solid food.

Vegetables.

The problem of vegetables is greater with the boy than with the girl. Father wants meat and potato only and so the boy thinks he must have the same and green vegetables are pooh-poohed. Without the co-operation of the father the mother's problem is more difficult. The child is quick to imitate. Father's or mother's "do as I say, not as I do" is not the way which gets quick results.

Mothers need instruction in cooking vegetables to make them attractive and palatable for it is difficult at best to teach some children to eat the vegetables. A section of "Cooking for Health" considers this problem.

Amount of Food.

It is not always necessary to change a child's food habits. Many children are found to be underweight because food is not taken in sufficient quantity. For such cases special emphasis is laid on amounts and the mother receives days' menus worked out in servings and calories required, for certain ages. In all cases, the nutritionist tries to be definite in regard to amounts of food.

Time Spent at Meals.

This question is serious at noon when the child looks upon his noon hour as an extra long play time with his dinner incidental. He snatches a bit and returns to play unless the mother is there to supervise the meal. No child likes to eat alone. It is equally true of breakfast. Then there is often no special time for that meal and it is eaten with the overhanging fear of tardiness. This leaves, of course, no time for natural body functions and the neglect tends to constipation.

Sleep and Rest.

Few children get the required number of hours sleep and because the parents so often lack the necessary control it is difficult to have the recommendation for extra rest during the day followed. Only the exceptional parent continues the recommendations for rest, over a long enough period of time. The importance of rest needs to be made most emphatic.

Interest of the Child in Gaining Weight and in Posture.

The boy is interested in reaching normal weight and he is especially interested in body mechanics. His questions regarding both posture and food are intelligent. Those boys not referred for poor posture often return to ask for the posture leaflet.

The girl of 12 and over lives in horror of becoming fat. While her mother and older sisters talk of reducing and the slender silhouette, the girl will continue to want to imitate them. Her ideal of beauty needs to be changed to the ideal of health at normal weight with no need for the rouge pat. She is quick to adopt food fads.

Conclusion.

It is the child in the family lacking parental control who is the most serious problem. It is not enough to teach what he should eat and how much, for without the parents' active co-operation the teaching will not be put into practice and continued for the time required to bring him up to normal weight and good health.

The mother will need some one to encourage and suggest lest her interest wane before his goal is reached. That this interest may be continued a copy of the nutritionist's recommendations is left for the school nurse and another copy to be put on file in the school where the child's teacher may refer to it and help to sustain his interest.

SUMMARY OF RESULT OF THE FIRST YEAR'S EXAMINATION.

By David Zacks, M.D., Division of Tuberculosis, Massachusetts Department of Public Health.

A BRIEF summary is here presented in table form of the first year's work of the State's Ten-Year Program for the prevention of tuberculosis. Space does not permit a more comprehensive analysis of the results.

There were examined over 10,000 white school children between the ages of five and fifteen. Of these three-fifths were girls and two-fifths boys. More children were examined in the 10–15 age group than in the 5–10 age group. As these examinations are primarily for underweight children and children who were exposed to human tuberculosis, this means that underweight for height and age occurs more often in children between 10–15 years of age. The reason for the greater number of girls examined is either that more girls are underweight or that there is a larger number of girls in our public and parochial schools. In this connection the fact that four-fifths as many girls as boys in the age group 10–15 die from tuberculosis is significant.

Approximately 29% reacted to the tuberculin (Von Pirquet) test. Strange as it may seem this percentage is the same for urban and rural children. 28% of the reactors give a history of exposure to human tuberculosis, and of these 25% were immediate, intimate contact with father, mother, sister or brother, or both; and only 2% give a history of remote contact, i. e. grandparents. On the other hand 12% of urban children and 15% of rural gave a history of contact but did not react to the test. The tuberculin test was refused by 7% of the parents.

A diagnosis of hilum tuberculosis was made in 5% of both urban and rural children examined, which is 18% of those who reacted to the tuberculin test. 45% of the reactors were found "suspicious." In the urban reactors 1.1% were found to have pulmonary tuberculosis against 0.23% in the rural reactors.

While the examination concerns itself primarily with the finding of "Hilum," "Suspicious" and "Pulmonary" cases, other defects cannot be ignored, especially such defects as may have some bearing on or be the direct cause of underweight and malnutrition.

Among such defects visible cervical glands were found in 8% of the rural children against 6% in the urban. In the urban children these glands were found just as frequently in the reactors as in the non-reactors. Of the rural reactors 11% showed these glands to 6% of the non-reactors. These figures show that visible glands in the cervical region are not necessarily tuberculous in origin as some seem to think. The 11% in the rural reactors is hard to explain.

Asthma was found more frequent in the rural than in the urban children. Untreated dental caries was found more frequent by 5% in the urban than in the rural children. Enlarged and diseased tonsils and adenoids were found 30.9% in the rural against 26.2% in the urban children. On the other hand, tonsils and adenoids were found removed equally often in the city and country children — about 33%. This indicates that in Massachusetts, at least, children in the country are just as accessible to surgical treatment as city children. Poor posture occurred in about 60% of the children.

Valvular heart defects were found alike in the city and country children, about 1.7%. As a possible etiological factor in these heart cases, tonsilitis ranks first, scarlet fever second, rheumatism and chores third.

The results given above are of interest from the point of view of clinical statistics. The more important and practical results of these examinations to the children can be left only to the future. Already, as these children are being re-examined this year there is gained the impression that underweight is being lessened and physical defects are being corrected. As a result of the re-examinations many children have been taken to family physicians for advice and treatment. A good many children have had the benefit of summer camps and some of preventoria. These results are made possible by the splendid co-operation of local public health and school officials, and public health and school nurses.

SUMMARY OF RESULT OF THE FIRST YEAR'S EXAMINATION.

	Urban		Rural		Total	
	No.	%	No.	%	No.	%
Number of children examined	8,519	84.3	1,579	15.7	10,098	100
Number of boys examined	3,589	42.1	642	40.6	4,231	41.3
Number of girls examined	4,930	57.8	937	59.3	5,867	58.5
Number of children with positive Von Pirquet (reactors)	2,235	28.8	424	28.3	2,659	28.5
Number of children with negative Von Pirquet (non-reactors)	5,510	71.1	1,073	71.6	6,583	71.3
Number of children who refused Von Pirquet	774	9.09	82	5.2	856	7.1
Total number of contacts examined	1,264	16.3	293	19.6	1,557	17.9
Number of known contacts in the reactors	595	26.6	123	29.0	718	27.8
(*a*) Number of immediate contacts	533	23.8	116	27.3	649	25.5
(*b*) Number of remote contacts	62	2.8	7	1.7	69	2.2
Number of known contacts in the non-reactors	669	12.1	170	15.0	839	13.7
(*a*) Number of immediate contacts	581	10.5	152	14.1	733	12.3
(*b*) Number of remote contacts	88	1.6	18	1.7	106	1.6
Number diagnosed as "Hilum"	410	5.2	75	5.0	485	5.1
(Per cent of reactors)		18.2		17.6		17.9
Number diagnosed as "Suspicious"	1,080	13.9	177	11.8	1,257	12.8
(Per cent of reactors)		48.3		41.7		45.0
Number diagnosed as "Pulmonary"	25	0.32	1	.07	26	.19
(Per cent of reactors)		1.1		.23		.66
Number with visible cervical glands	494	6.3	120	8.0	614	7.1
(*a*) In reactors	151	6.3	47	11.0	198	8.6
(*b*) In non-reactors	343	6.2	73	6.7	416	6.4
Number of children with asthma	97	1.25	44	2.9	141	2.0
(*a*) In reactors	36	1.6	16	1.4	52	1.5
(*b*) In non-reactors	61	1.1	28	2.6	89	1.8
Number of children with defective teeth	4,051	47.5	668	42.3	4,719	45.0
Number of children with enlarged and diseased tonsils and adenoids	2,235	26.2	488	30.9	2,723	28.5
Number with tonsils and adenoids removed	2,752	32.3	529	33.5	3,281	32.9
Number of children with poor posture	4,886	57.3	995	63.0	5,881	60.1
Number of children with heart murmurs	139	1.6	29	1.18	168	1.7
Possible etiological factors for these heart murmurs:						
(*a*) Tonsilitis		34.5		44.7		39.6
(*b*) Scarlet Fever		15.8		17.2		16.5
(*c*) Rheumatism and Chorea		15.1		6.1		10.9

NUTRITION FOLLOW-UP.

By Lou Lombard, Nutritionist, Division of Hygiene, Massachusetts Department of Public Health.

THE conference with the nutrition workers at the Clinic is of very little value unless the recommendations for better food and health habits are followed out. This involves the co-operation of the people at home, hence the importance of having some older person from home present at the time of the interview with the nutrition worker. The average child tries conscientiously to follow out the recommendations. All goes well for about a week or two, and then, probably because there are no startling results from the prescribed régime, interest wanes. The child falls back into his old habits of eating and living unless there is some one to help keep up his interest.

Since the Clinic nutrition workers do not see the child again the problem of keeping up his interest falls upon the child's parent, nurse, and teacher. No one of these three can accomplish much alone, but the three working together can. If the parent is co-operative, interested, and financially able, half the battle is won, because conditions at home will be made as ideal as possible for carrying out the régime. If the financial condition of the family is limited the child is greatly handicapped in his effort to gain. If the parent has little control over the child and assumes the attitude, "the child will do only what he wants," a larger burden is put upon the nurse and teacher, and probably much less can be accomplished.

Since "no one is a prophet in his own country" it is often true that the advice of the nurse and teacher have more weight with the child than that of the mother, so they are a great help to the co-operative and interested mother.

A copy of the nutrition recommendation is given to the school nurse and through her visits to the home she keeps in close touch with the child and encourages him in his efforts to do what he should. Frequently when financial aid is necessary to carry out the program the nurse can help to get this.

Since each teacher may have only three or four children who have been examined at the Clinic it may be impossible for her to give them individual attention, but usually through her general health teaching to the whole class the points are emphasized and thus he is encouraged. In several towns where there are fresh air rooms in the schools the suspicious cases have been sent to the fresh air teachers. Excellent work has been done in such classes with these children. The nutritious food and the rest periods do much to help, and in such cases they make remarkable gains in weight and improvement in their general health condition.

A year after the first examination Clinic is held the suspicious cases are re-examined. As part of this re-examination there is a nutrition worker who does the follow-up on these special cases. She goes to the town immediately after the re-examination Clinic has been there. She visits the various schools and interviews the school nurse. The nutrition recommendation sheets for the previous year are gone over so that she may know just what the child was supposed to do. Then each child is interviewed and a new home program based upon his present food and health habits is made out. If possible the nutrition worker visits the home of the child the day of the interview, or as soon after as possible, so that she may have some idea of the home conditions and talk over the special needs of the child with the mother. This interview with the mother in the home is one of the most valuable phases of the work, and in most cases the response from the mothers is very good and they are willing to co-operate. The nutrition worker usually interviews the child in the school in the morning and makes her home visit in the afternoon. She averages about five home visits a day. When all the cases have been interviewed and the home visits made, the nutrition worker leaves a list of the children and the special recommendations for each with the nurse for her own use.

There is a large group of children in the original Clinic group who never see the Clinic nutrition workers at all. They are the negative cases who are simply undernourished. Their chief need is instruction in the formation of better food and health habits. This instruction is developed through the general health teaching in the schools.

Health teaching, that is, the teaching of good food and health habits to all children, has been done for the past five or six years in some towns of the State. At present practically every town is doing some health teaching, and several have organized health teaching throughout the grades. In these towns health is correlated with all the other subjects and forms an integral part of the whole school program. Such general health teaching is the ultimate solution of this problem of undernourishment among children.

WHAT THE TEN-YEAR PROGRAM SHOULD DO FOR SCHOOL HYGIENE.

By Merrill Champion, M.D., Director, Division of Hygiene, Massachusetts Department of Public Health.

THE Ten-Year Program for the underweight child should bring a new meaning and an added incentive to school hygiene. Aimed at the school child, carried on through the school system, this effort to reduce the incidence of tuberculosis among children depends for its success upon the enthusiasm with which the local school and health authorities take hold of the work in order to make it a permanent thing.

Three classes of children will be found as a result of this intensive work with the school child. The first will comprise frank cases of hilum tuberculosis; the second, suspicious cases only; the third will not fall into either of the two above-mentioned groups, but will be made up of children who for some unknown reason are undernourished. It is to this last largest group chiefly that reference will be made in this article.

It has already been pointed out that the local school authorities have a great part to play. For the last twenty years Massachusetts has had a statute which prescribes an annual physical examination for each child in the public schools. For the last five years there has been one requiring state-wide school nursing. Local communities thus have in part, at least, the machinery for health supervision and promotion. Yet in spite of this, health supervision and health habit promotion are far from satisfactory.

Certain reasons for this are more or less obvious. Medical inspection, so-called, is not well organized. It is a sort of orphan of the school system. In most places it has not been able to make itself felt as a truly integral part of school work. Many school superintendents know very little about it and pay little attention to it. The school physician is usually underpaid though sometimes overpaid for the amount of work he actually does. Never is the actual expenditure what it ought to be to get good work done. The underlying factor is public indifference. The public is not really "sold" to the idea that health supervision of the school child is worth while and pays in every way.

Thus far we have talked largely in terms of medical supervision. But more important still is what we have referred to as "health habit promotion." If this is to be successful we must introduce another human factor, namely, the teacher. Special teachers of hygiene are invaluable, of course, in their place, but for a long time to come, if not always, the ordinary room teacher — aided in every way by the school nurse — will be the one to whom we shall have to look for successful health habit promotion in the schoolroom.

Let us turn now for a moment to the child whom the Ten-Year Program is designed to reach. Primarily he is the underweight child, but underweight is only a symptom of an underlying physical disturbance. As has already been pointed out elsewhere, the underlying disturbance may be tuberculosis. But in the majority of instances nothing will be discovered except the undernourished condition and faulty health habits. Well, faulty health habits are common also amongst children who do not as yet show undernourishment. The cure for this type of faulty condition is, of course, the teaching of good health habits. But that is what every child, well or not well, needs. Therefore, we are led inevitably by the Ten-Year Program to a fresh realization of the value of teaching good health habits to all school children.

Another point must now be taken into consideration. The Ten-Year Program will be successful only if it is ultimately taken over by the different communities of the State. This means that the medical examination of the school child must soon include a competent judgment on the part of the school physician as to whether or not the child shows suspicious signs of hilum tuberculosis. It will not be expected, of course, that the school physician should in most instances have the necessary skill or the necessary equipment — X-ray and Von Pirquet — to make a final diagnosis. Nor is it the function of the school to furnish final medical diagnosis in the case of its children — that is the function of the family physician or consultant. The school physician should, however, be able to justify his suspicions that a given child may have hilum tuberculosis.

It ought to be sufficiently evident, then, that the Ten-Year Program will have a far-reaching effect upon school hygiene in its broad sense, for—

1. It will encourage greater skill on the part of school physicians in the physical examination of the school child.
2. It will foster health habit promotion and the teaching of hygiene in the schools, not only with reference to the child who is below par, but also with reference to the healthy child.
3. Most important of all, it will stimulate greater interest in parents in the health of their children, in school or out of school.

MATERNAL AND INFANT HYGIENE SECTION.

Compiled by Susan M. Coffin, M.D.

"The Big Four" make Well Children.

1. Healthy Parents.
2. Prenatal care and Breast feeding.
3. Right diet.
4. Examination twice a year by the family doctor with prompt correction of defects found.

TUBERCULOSIS IN INFANTS.

By Richard M. Smith, M.D., Boston.

Tuberculosis in infants differs in many respects from the disease in older children. It is a common condition, being responsible for a considerable proportion of the deaths under two years of age. The physical signs of the disease are of two distinct types: First, those which are dependent upon a localized infection, i.e. in glands, bones, peritoneum; and, second, those which are evidences of a general septicemia. The Bovine type of organism is responsible for the infection in a much larger percentage of cases than in older children. So long as infants are fed on raw milk this proportion will remain high. The concensus of opinion, among those having most to do with the feeding of infants, is in favor of pasteurizing or boiling all milk given to infants.

Cervical gland tuberculosis depends upon infection through the tonsils. It is fairly common, but is seen more frequently in children over two years of age.

Mesentery or bronchial gland tuberculosis occurs with considerable frequency and the diagnosis can be made by the presence of a slight temperature, poor general condition, failure to gain in weight, and a positive intradermal tuberculin reaction and an X-ray picture of the chest.

The peritoneal cavity may be the only portion of the body in which the physical signs of tuberculosis infection are manifest. The diagnosis depends upon the signs of fluid in the peritoneal cavity or masses, or fluid, masses and obstruction with a positive intradermal tuberculin reaction.

In these forms of tuberculosis cure may take place. The treatment consists in the removal of tuberculous cervical glands, in the application of general hygienic measures and heliotherapy.

General tuberculosis in infants is always fatal. The physical signs of the disease are not infrequently limited to a single portion of the body, i.e. to the lungs, meninges, or peritoneal cavity, but on post-mortem examination the infection is found to be widespread throughout the body. The physical signs depend upon what part of the body is most affected and upon the extent of the infection. In tuberculosis of the lungs, the X-ray plate is characteristic. In tuberculous meningitis the spinal fluid is diagnostic. In tuberculous peritonitis the signs are the same as in instances where the infection is limited to that portion of the body.

It is essential to bear in mind in examining any infant who is not progressing favorably that tuberculosis may be the cause of his unsatisfactory development. In all such instances it is important to search for any signs of localized infection and to do an intradermal tuberculin reaction, and, in doubtful cases, to take an X-ray of the chest.

BIBLIOGRAPHY OF CURRENT LITERATURE ON TUBERCULOSIS IN CHILDREN

Tuberculosis in Children.
Samuel Wetchler, M.D.
P. G. Medical School, New York.
Archives Pediatrics, May, 1925.
Brief but comprehensive article describing types particularly.

Pulmonary Tuberculosis in Childhood.
Albert J. Bell, University of Cincinnati.
Archives of Pediatrics for February, 1925.
Covers diagnosis including detail of various tests, and outlines briefly essentials of treatment.

A report of 165 children suffering from pulmonary tuberculosis admitted to the Derbyshire Sanitorium between 1918–1923, contrasts the fatality of those having adult form of pulmonary tuberculosis with those having hilum tuberculosis.
Of the 48 having the adult form 18 have died.
Of the 117 having hilum tuberculosis only one has died.
—Lancet, London, December 27, 1924.

Diagnosis of Pulmonary Tuberculosis in Children.
Samuel Singer, M.D., Philadelphia.
Archives Pediatrics, November, 1925.
Gives detail of diagnosis in various types. Describes new test for tuberculosis brought out by Wildbolz (Switzerland) — the auto-urine test "which is considered by many to be specific for active tuberculosis in any part of the body."

In the American Review of Tuberculosis for May, 1925, Herben and Asserson present a study of their series of 135 cases of tuberculosis under 15 years of age showing that in almost all cases the cause of the infection is the human type of tubercle bacillus and that evidence is predominantly against milk infection as a cause in New York City. In 47 specimens of spinal fluid showing tubercle bacilli the bovine type was found in only three.

Prognosis in Tuberculosis in Infants and Young Children. (Nourrisson, Paris, January, 1925). In Lemaire's 100 cases the mortality was 24 per cent, with a death rate of 57 per cent during the first year of life, which decreased to 1.66 per cent between the ages of 1 and 2½ years. Twenty-three of the twenty-four fatal cases were due to familial infection which resulted fatally in 28 per cent of the total number of cases, while the mortality from accidental infection was only 5.5 per cent. Splenomegaly was present in 41 per cent of the fatal cases and in 21 per cent of the cases with recovery. — Journal A.M.A.
— Archives Pediatrics, October, 1925.

VALUE OF MEDICAL INSPECTION OF SCHOOL CHILDREN

Sir Arthur Newsholme:

"The chief value of medical inspection of school children has been to demonstrate the extent to which children of school age are suffering from defects and diseases which might have been prevented or minimized by attention to the preschool period."

— (Gesell's "Mental Growth of the Preschool Child, p. 431.)

Maryland's "six months law," passed in 1916, prohibits the separation of a child under six months from his mother except under specified conditions.

A notable effect of the law was a remarkable reduction in deaths of infants from gastric and intestinal diseases, especially in the earlier months of the first year of life, and this is doubtless partly due to the wider prevalence of breast feeding where the child remains with the mother.

PREVENTION OF PUERPURAL MORBIDITY AND MORTALITY

F. Ives, in the British Medical Journal, 3352, p. 589, 1925, is of the opinion that latent or pre-existing infection, streptococcal, gonorrheal, or coliform, is responsible for a considerable proportion of cases of puerperal sepsis. The organism may not infrequently be isolated by bacteriological examination of the urine during pregnancy. Intermittent Albuminuria, during pregnancy especially, is an indication for such an examination. Women should therefore be removed from unsuitable surroundings, and a rigidly aseptic technic is as important as for a surgical operation.

The first "Infant Welfare Center" was established in 1892 by Dr. Budin in Paris for examination of babies and instruction of mothers in the care of their children.

THE COMMONHEALTH

QUARTERLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to Any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
FRANCES KLEIN, S.B., ASSOCIATE EDITOR.
Room 546, State House, Boston, Mass.

American Health Congress. — In Atlantic City, May 17 to 22, 1926, will be staged the largest meeting for health workers that has occurred in a long time. This American Health Congress will be participated in by sixteen national health organizations, a number of whom will be holding their annual meetings at this time. An attendance of at least seven thousand is expected.

This Congress is under the auspices of the National Health Council to whom application should be made for information regarding hotel reservations and program. It goes without saying that with such an array of health organizations sharing in the program there ought to be something to suit the taste of health workers in every field.

Summer School at Hyannis.— The summer course for school nurses will be continued this year at Hyannis State Normal School along substantially the same lines as last year. There will also be given again the course in Health Education for teachers. The studies required of nurses attending the school are School Nursing Procedures; Principles of Teaching Health Subjects; and Biology as a Basis for Health Instruction. Electives allowed are Physical Education; Psychology; Mental Measurements; Pedagogy; Immigrant Education. Not more than two courses may be taken during the session. Special recognition for work will be given upon the satisfactory completion of three required and three elective courses.

Previous courses in School Nursing at Hyannis may be counted towards a six-course certificate.

Further information regarding these courses and application for enrollment may be made to the Division of Hygiene, Massachusetts Department of Public Health, State House, Boston, Mass.

May Day. — While the world is shoveling itself out of the heaviest snow blanket in years it is the editor's job to prepare copy on the celebration of May Day. This planning ahead is one of the hardest tasks the editor has to do. It is quite simple to describe a May Day frolic when the birds are singing and the trees budding; it is different to look out through an office window strung with icicles, to a city buried in snow, and write about barefoot dancers tripping in and out on a carpet of soft green grass. And yet the spirit of May Day holds the year round. It is the spirit of fresh, joyous, healthy childhood. It could be celebrated just as well by the mid-winter carnival. The same elements would be there — sunshine, out-of-doors, and a feeling of "glad-to-be-alive."

In setting aside May Day for Child Health Day over all this nation, it is with the hope that an effort will be made throughout the whole year to give children their right to 100% health, so that they will grow up into manhood and womanhood without any handicap to physical, mental and moral activity.

Team Play.— A new phase of team play in health education was put into practice in January, and has been "playing" ever since. We refer to the co-operation of the State Drawing Supervisors with the State Department of Public Health in the making of health posters. The plan is this: the State Department supplies a sheet of health slogans which may be cut out either in block form or by individual letters and pasted on a 9″ x 12″ sheet. The drawing class may then devote the majority of time to the free-hand illustration on the poster rather than spending the greater part of the time planning the lettering. And in addition to the practice in illustration, certain fundamental health lessons are unconsciously driven home to the students.

Once Upon a Time. — "Mother, please tell me a story."
"What kind of a story?"
"A fairy tale."

And the child listens attentively, and goes to sleep dreaming of the words and deeds of some fairy character. In his play time he imitates the hero; he scoffs at the villain.

In its effectiveness the fairy tale ranks high as a method of teaching. Why not health heroes, and sickness villains? The Massachusetts Department of Public Health is trying out some fairy tale characters in health teaching in the schools, and will be ready within a short time to estimate their efficacy. The stories are told as an accompaniment to a delineascope film — a series of twenty-five story pictures. The rural schools are being chosen in most cases, as the pictures are a greater treat when advantages are not many.

Health films and delineascope films, with or without the Department "story-teller" are available free of charge for educational entertainments throughout the State.

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of October, November and December, 1925, samples were collected in 127 cities and towns.

There were 1,327 samples of milk examined, of which 409 were below standard, 28 samples had part of the cream removed, 32 samples contained added water, and 1 sample was skimmed milk below the legal standard.

There were 1,097 samples of food examined, of which 338 were adulterated or misbranded. These consisted of 100 samples of eggs, 97 samples of which were cold storage not properly labeled, and 3 samples were decomposed; 114 samples of clams, 85 samples of oysters, and 17 samples of scallops, all of which were watered; 3 samples of fish which were decomposed; 1 sample of condensed milk which had the cream removed; 14 samples of sausage, of which 4 samples contained starch in excess of 2 per cent, 8 samples contained a compound of sulphur dioxide, 1 sample contained coloring matter, and 1 sample was decomposed; and 4 samples of vinegar which were low in acid.

There were 17 samples of drugs examined, of which 4 were adulterated. These were lime water deficient in the active ingredient.

The police departments submitted 1,925 samples of liquor for examination, 1,902 of which were above 0.5% in alcohol. The police departments also submitted 21 samples of alleged poisons for examination, 1 of which was opium, 3 cocaine, 12 morphine, and 5 samples were examined for poison with negative results.

There were 17 samples of coal examined, 9 samples conforming to the law, 7 samples contained an unreasonable amount of impurities, and 1 sample sold as low volatile bituminous coal was found to be high volatile. One sample of coke was examined which conformed to the law.

There were 54 hearings held pertaining to violations of the Food and Drug laws.

There were 18 convictions for violations of the law, $405.00 in fines being imposed.

Manuel Mederos of Swansea; Manuel J. Rogers of Oak Bluffs; Waldorf System Incorporated of Fitchburg; Peter J. Sharon of Hudson; Fred O. Trask of Sterling; Nicholas Colas of Plymouth; Eugene Azariades and Charles Zaruk, both of New Bedford; Spiros Fortsakis, James Meligdis, George Staebewseki, Simon Sorandis, all of Springfield; Robert Fera of West Springfield; Converse Square Lunch Incorporated of Malden; and Axel Nelson of Pittsfield, were all convicted for violations of the milk laws. Fred O. Trask of Sterling appealed his case.

Robert Fera of West Springfield was convicted for selling cream below the legal standard.

Sebastian Becker of Woburn, on 2 cases, was convicted for violation of the slaughtering laws.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 16 samples, by John Mendoza of Assonet; and 3 samples, by Crawford Dearth of Ashland.

One sample of sausage which contained starch in excess of 2 per cent was obtained from Phillip Epstein of Boston.

One sample of sausage which contained a compound of sulphur dioxide was obtained from Bernard Stuart of Boston.

One sample of sausage which was decomposed was obtained from United Butchers of Lawrence.

Hamburg Steak which contained a compound of sulphur dioxide was obtained as follows:

Two samples, from Harry and Barnet Gillis of Boston; 1 sample each, from Wigler Bielsky of Boston; and Daniel Vigghiany, and Dominic Boschetti, both of North Adams.

There were eight confiscations, consisting of 105 pounds of tainted beef, 60 pounds of decomposed beef tenderloins, 350 pounds of decomposed beef cheek meat, 6 pounds of tainted lamb, 10 pounds of tainted veal, 5 pounds of decomposed pork, 35 pounds of decomposed poultry, and 200 pounds of decomposed smelts.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of September, 1925: 684,480 dozens of case eggs, 259,746 pounds of broken out eggs, 2,896,380 pounds of butter, 473,177 pounds of poultry, 2,525,595 pounds of fresh meat and fresh meat products, and 2,690,793 pounds of fresh food fish.

There was on hand October 1, 1925: 12,803,160 dozens of case eggs, 2,688,425 pounds of broken out eggs, 17,308,401 pounds of butter, 3,907,715 pounds of poultry, 6,636,169 pounds of fresh meat and fresh meat products, and 17,574,972 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of October, 1925: 576,960 dozens of case eggs, 656,775 pounds of broken out eggs, 1,744,046 pounds of butter, 1,100,530 pounds of poultry, 2,501,124 pounds of fresh meat and fresh meat products, and 2,422,515 pounds of fresh food fish.

There was on hand November 1, 1925: 10,085,400 dozens of case eggs, 2,767,488 pounds of broken out eggs, 14,984,523 pounds of butter, 3,988,510 pounds of poultry, 3,492,674 pounds of fresh meat and fresh meat products, and 16,414,223 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of November, 1925: 375,240 dozens of case eggs, 236,403½ pounds of broken out eggs, 1,008,034 pounds of butter, 2,143,464 pounds of poultry, 2,991,806 pounds of fresh meat and fresh meat products, and 1,411,553 pounds of fresh food fish.

There was on hand December 1, 1925: 7,121,970 dozens of case eggs, 2,239,197 pounds of broken out eggs, 12,268,936 pounds of butter, 4,967,011 pounds of poultry, 3,808,957 pounds of fresh meat and fresh meat products, and 12,811,575 pounds of fresh food fish.

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Hygiene for the Business Girl

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

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INTRODUCTION.

ONE never has to travel very far to find someone who is willing to preach. Free advice is the commonest thing there is. But like most free things, gratuitous advice is rarely prized. This is apt to cause considerable chagrin to the giver of the advice. There is, however, often a good reason for the neglect of the advice aside from the fact that it is free. It is too often phrased in unintelligible terms and no incentive for following it is given the reader which appeals to his interest or his reason.

The advice which is given in the succeeding pages of this issue of THE COMMONHEALTH is intended to be of the plain common-sense kind. It is intended primarily for the girl or woman who works outside the home, though most of it could be followed with profit by anyone. For hygienic living is, after all, based on common sense and a working knowledge of a relatively small number of facts or rules. The editors have written the first article — that on Personal Hygiene for the Business Girl. The succeeding articles have been prepared by various writers, each especially interested in the subject on which he or she writes and each with special qualifications for the task.

PERSONAL HYGIENE FOR THE BUSINESS GIRL.

PERSONAL hygiene has to do with the laws of health as they affect the individual herself. Its application depends largely upon the individual rather than on groups of individuals. Community hygiene, on the other hand, depends for its success upon the cooperative effort of more or less large groups of persons. An example of the former may be seen in the choice by the individual of a properly balanced meal. As an example of the latter kind of hygiene we may cite the employment by the community of measures to safeguard the milk supply of a city or town.

It should hardly be necessary to talk at any great length about the importance of health to the individual. Everyone can call to mind instantly cases where careers have been cut short by loss of health. Most everyone knows from personal experience the handicap to the day's work caused by an ordinary headache. The common cold is said to be responsible annually in this country for the loss of more than a billion dollars, to say nothing of the discomfort or worse to the individuals suffering from the colds. Taking it by and large there is not the slightest question but that the person of robust health has the best chance of getting ahead in this world. As someone has said, it is the individual who can work without undue fatigue two hours a day longer than the other fellow can who wins out in the long run — and he enjoys life more into the bargain.

This brings us to another point. It is rather dull sometimes to follow strict rules even though they are according to the most learned hygienic Hoyle. Doughnuts of the popular "sinker" variety are not the best of food for everyday use. On the other hand they do taste pretty good sometimes. One might even say that the individual who has never eaten a doughnut has missed a good deal. There are times when it is worth while to take a chance on a sinker, but the intelligent person will discriminate and will not begin a hard day on doughnuts and coffee for breakfast and will not risk indigestion and discomfort all a working afternoon by snatching such a lunch at noontime. An evening out, on occasion, helps to liven one up and to serve as a foil to the more routine day's work. One can afford to disregard the curfew at such times. On the other hand the person who habitually must have theatre or dance night after night is bound to suffer the consequences in physical weariness and mental staleness.

Perhaps we may safely talk over right here the commonly accepted rules of health, see how far they are practicable under modern living conditions and determine what they are likely to do for us.

Nutrition and Mental Hygiene.

If there is one thing more than another that we have learned about hygiene in the last few years it is that the two factors which have the greatest influence upon our health and happiness are nutrition and mental hygiene. Much technical knowledge has been assembled in the laboratory and elsewhere regarding foods and their effect upon the human body. This does not mean, however, that all this knowledge must be mastered by the girl who wants to be normally healthy. The rules which really must be mastered are few in number and very simple. As for mental hygiene, that is largely a matter of common sense. Everyone has to admit, of course, that common sense is not so common as we should like to have it. Moreover, it is one thing to know about what ought to be done and quite another actually to be able to put it into practice. President Eliot attributes much to "a calm temperament expectant of good." That is what we all should like to be blest with. Most of us, however, spend a good deal of time in worrying. This is partly a matter of temperament and partly a matter of over-indulgence in thoughts about self. Courage or fortitude is necessary if we are to live with decency in a world of struggle and disappointment. They take the place to a certain degree at least of a naturally calm temperament. It is even possible to be too busy to worry much.

Exercise and Rest.

Turning now to some of the simpler phases of health promotion, we may think first, perhaps, of the matter of exercise and rest. Exercise seems to be going out of fashion with the extension of the use of the automobile. Over-eating has not gone out of fashion, nevertheless, and the combination is most unfortunate, especially for the middle-aged. The least that a business girl should do in the way of exercise is a long daily walk. It is much better to add some kind of play in the open air. This play should not be too strenuous at first if you are not used to it. In summer, swimming is usually available. In winter it is a pretty good plan to attend a good gymnasium three or four times a week if one is at hand. Exercise is much more likely to be carried out regularly if it is taken in company with others. It is perfectly possible, however, to get great benefit from regular exercises taken in one's own room for fifteen or twenty minutes every morning. In either case the results are well worth the effort.

Rest is just as necessary as exercise. In addition to eight hours' rest in bed many persons require a certain amount of rest during the day. Lying down for ten or fifteen minutes at noon time is an excellent practice but, of course, is not possible for many. One should be only pleasurably tired at bedtime and should feel rested and ready for work in the morning.

Bathing is a procedure about which it is hard to lay down hard and fast rules. A cold plunge every morning is invigorating to those who react well. Many persons do not react well. For them, a cool or tepid bath followed by a brisk rub with a coarse towel is better. Bathing is not entirely a matter of cleanliness. The stimulating effect on the skin and nervous system is even more important.

Clothing.

Clothing is intended to be both protective and decorative. Too often, somehow, people seem to think only of the decorative side. High-heeled pumps in winter can hardly be said to be protective; opinions differ as to how decorative they are. Sensible and hygienic shoes for street and office wear should be of medium weight and have low broad heels. The inner line of the shoe should be as nearly straight as possible; the shoe ought to be broad enough to fit the foot. There is neither beauty nor comfort in narrow tight shoes. As to the rest of the clothing, it may be said that it should be suitable to the season, light and cool for summer and somewhat heavier for winter — something, perhaps, in between the extreme that was felt to be necessary by the older generation and the minimum affected by some at the present time. In winter we should remember that the houses and offices in which we spend such a large part of our life are steamheated to a tropical temperature, so that we can to a large extent get the extra warmth we need from heavy outer garments worn while out of doors.

Other Matters of Importance.

A variety of other topics call for a word of explanation. Take the matter of posture. Everyone — or at least most everyone — can appreciate the good impression created by a fine, erect carriage, but relatively few persons apparently appreciate the relationship between good posture and a sound digestion, freedom from weariness and even a cheerful outlook on life. Closely allied with the question of posture is that of elimination. Regular daily bowel movements are essential to health. Constipation is a prolific cause of headache, grouchiness and melancholy.

The subject of communicable disease is another which ought to be at least touched on in this connection. Communicable disease is usually passed directly from person to person. The danger is naturally greatest in crowds. If one avoids the careless cougher and sneezer one will have done a good deal towards avoiding the common cold which interferes so often during the year with the wage earner. The hands should always be carefully washed before eating. In addition, everyone should get immunized against smallpox, typhoid and diphtheria. This, taken together, offers a pretty respectable protection against communicable disease.

This brief outline of hygienic measures may seem very elementary and an old story. It is. But then, the principles of hygienic living are simple. The difficulty seems to be that we don't take the trouble to put them in practice. To use a current phrase, we aren't "sold" to the idea. But the girl in business who wants to do her work with efficiency and without a constant feeling of restlessness and dissatisfaction; who wants to get something real out of life; will find it worth while to consider carefully the part that physical health plays in enabling her to attain physical and mental poise.

EATING FOR HEALTH.

By Laura Comstock, Nutrition Adviser, Eastman Kodak Company.

DO you remember when you were a very young girl wishing that you lived in a candy house and were made to eat your way out? Not many of us now would enjoy having to eat that much candy, but we still have a "sweet tooth." If we can keep that tooth from growing to such an enormous size that it crowds out the others, all well and good. But if it begins to get the better of us, we should pull it out.

Too many sweets mean aches and pains, but a right diet means "eating for health." *What, when,* and *how much* we eat have more to do with our health than we think. Are you drinking enough water? Are you taking it at the right time? Are you using a pint of milk daily? Are you eating green, leafy vegetables? Do you have raw fruits often? If you are underweight for your age and height can you not eat more of right foods? These are some of the questions you should ask yourself. Check yourself by the following program. If you are not doing the things suggested, change your habits and see if you do not feel much better.

When You Get Up.

When you hop out of bed in the morning drink two glasses of water — warm or cold — suit yourself. If it "sticks" try putting the juice of an orange in one glass and taking the other clear.

Breakfast.

Make your breakfast a right one — not just an excuse for one. If you have not had an orange with your water, take *fruit,* any in season. Prunes are excellent.

Next have cereal with much milk, or an egg, or both; toast, bread, rolls or muffins and butter; cocoa made with milk, or if coffee, one cup only. Top off with water. With this breakfast to work on, your body will not complain through the morning.

Toilet Habit.

After breakfast before you leave the house, or as soon as you get to work, go to the toilet for your morning bowel movement. No one can have abounding health unless the body rids itself of waste regularly each day. If you are not in the habit of doing this, start it now and keep it up.

Mid-Morning.

Drink half a glass of water in the middle of the morning.

Lunch or Supper.

A cup of milk soup is a good start for your lunch or supper. Follow this with a cheese or egg dish with baked beans or something similar. A salad makes a good luncheon dish. Eat this with whole-grain breads or muffins and butter. If you wish, eat a light dessert. Here is the place for a piece or two of candy.

A glassful of water should be taken during the noon period.

Mid-Afternoon.

Some more water.

After Work.

Walk home from work, or if you live too far for that walk twenty minutes of the way, especially if you sit most of the day.

Dinner.

The nicest meal in the day. Tell your funny stories while eating your potato, meat, *vegetables* (two of them unless you had one at noon, and have one the leafy kind), bread, butter and a dessert. Another time for your candy!

A glass of water with your dinner and another one just before going to bed (unless it disturbs your sleep).

You may like a different arrangement for your foods. Very well, put them where you wish but *follow these seven rules:*

1. Eat a *good breakfast.*
2. Use a pint of *milk* (as a beverage, in soups, creamed vegetables, desserts). Cheese may be used as part of your milk supply.
3. *Vegetables,* two a day besides potatoes. One of them should be the green, leafy kind.
4. Fruits daily. Fresh ones are best. Tomatoes (raw or cooked) may be used in place of oranges.
5. Six to eight glasses of water each day.

For fifty-two weeks —
If you wish color in your cheeks
Drink six glassfuls of water each day.
To begin the day right
Drink two on the start
And one on retiring at night.

6. Add coarse breads and cereals, butter and potatoes. Let your weight help you to decide right amounts of these. Meat only once a day.
7. Eggs are valuable. They may be used daily to advantage.

Your food must give your body three things: *fuel* to use in work, play and sleep; building and repairing material; regulating material. Those listed supply your needs. Follow the seven rules and watch your eating make for health.

SUGGESTIVE MEALS FOR WORKING DAYS.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Breakfast.	*Lunch.*	*Dinner.*
Stewed prunes Rolled oats and milk Rolls and butter Coffee	Cream of pea soup Crackers Celery Ice cream and cookies	Baked hash Stewed tomato Lettuce and French dressing Bread and butter Banana custard
Scrambled eggs Toast and butter Coffee	Baked beans Brown bread and butter Diced fruit Glass of milk	Baked fish Mashed potato Spinach Bread and butter Chocolate cornstarch pudding with milk or cream
Banana Shredded wheat and milk Corn muffins and butter Coffee	Cream of spinach soup Crackers Fruit salad Rolls and butter	Hamburg steak and gravy Baked potato Creamed carrots Bread and butter Baked custard
Wheatena with dates and milk Toast and butter Coffee	Escalloped vegetables Whole wheat bread and butter Gingerbread Glass of milk	Bacon and egg Baked potato Buttered cabbage Bread and butter Stewed rhubarb

Breakfast.	*Lunch.*	*Dinner.*
Orange juice Rolled oats and milk Graham muffins Coffee	Corn chowder Crackers Rhubarb pie Cheese	Baked fish Mashed potato Stewed tomato Bread and butter Bread and jelly pudding with cream
Banana Grapenuts and milk Rolls and butter Coffee	Vegetable plate Bran muffin Custard Glass of milk	Baked beans Brown bread and butter Cabbage salad Apple tapioca and cream

HEALTH THROUGH RECREATION.

By Florence Somers, Assistant Supervisor of Physical Education, Massasetts Department of Education.

In these days of hurry and progress, of new and wondrous inventions which limit our need for movement, when all kinds of artificial amusements and recreation are thrust before our responsive eyes, how often do we stop to think what contribution our recreation is making to good health and long life? Most of us are safeguarded during our working hours with proper working conditions for health, and we are given splendid health attention and service at the expense of our employers, because they realize that it pays them in actual dollars and cents to maintain strong, healthy workers in their establishments. They see that there is good ventilation and heating, proper lighting and cleanliness and an opportunity for rest; they safeguard us from injury by supplying safety devices for our machines, apparatus for preventing spread of fire, etc., and they furnish trained consultants for advice concerning small illnesses and injuries before these have reached more serious stages. Such conditions are protective and preventive measures for health. It is only in our free hours that we may choose the sort of activities which actually produce good health, which develop vigor and vitality and a sense of well-being. For exercise and games and sports are such sources of power.

Instead of taking medicine when you are sick, would it not be better to see to it that you never become sick? Is this idea an idle fancy, something quite beyond our control? Certainly not! True, it requires much more effort to keep well and healthy than merely to take medicine; but this effort which a constant routine of exercise and play demands at first is soon outweighed by the joy and satisfaction and exhilaration which come to one through bodily activity, and in the sure feeling that one is not only gaining but maintaining good health by this means. We should think of health not alone as freedom from disease and deformity, but as a realization of the highest physical, mental and spiritual possibilities of an individual.

It is unfortunate that so many of us lose the spirit of play, of active recreation, early in life. We sink into the "stupor" of middle age long before it is intended we should. We all admire the person who grows old with the spirit of youth and of summer in his heart. There is no better way to keep this spirit of youth alive in our own hearts than through active out-of-door games, played regularly, with the association and friendliness of other people as team mates and opponents in the game. We keep alive ideals of fair play and of good sportsmanship as we play, and these are ideals which are as contagious as fun and laughter, and will truly improve the morale of a whole community. It may be hard to believe, but it is actually true that the introduction into a community of a good system of recreation which includes play for young and old, winter and summer, has been the means of uplifting the tone and character of the community, making it a far better place in which to live.

We should recognize that there is a proper balance in life between work and play. We are rapidly approaching the ideal that a man or woman has not attained real success in life until he or she has learned how to combine work and play in such a way that the work will be done more efficiently and the play will insure a more normal healthy human being. The man who spends his life and strength in accumulating money, and is perfectly helpless when he finds a little of leisure on his hands, is not the pattern after which young people are trained today.

"If your nose is close
To the grindstone rough,
And you hold it down
There long enough,
In time you'll say
There's no such thing
As brooks that babble
And birds that sing;
These three will all
Your world compose —
Just YOU, the STONE and
Your darned old NOSE."

Every girl and woman should so regulate her daily schedule that she has time each day for some form of exercise. Perhaps during the week there may be time and opportunity for nothing more than ten minutes of the "Daily Dozen," but at least once a week and much more often when possible, several hours of vigorous out-of-door play should be a part of the program. Just as we cannot eat enough at one time to keep our bodies in an efficient working condition for a whole day or more — so we should not lump all of our exercise into periods which occur only at long intervals. Daily exercise is as important in many ways as daily food or sleep.

Many of you will say that you have no time or opportunity for such a schedule. Remember that your *time* is your own, and at your own disposal. After working eight hours and sleeping eight hours you still have eight hours daily to use as you see fit. How you make use of these remaining eight hours depends a great deal on your own sense of value of the important factors of life. Let me outline a possible program of recreation for a person who is busy during the day. In the first place, many times every day stop your work for half a minute and stretch your body up just as high as you can reach. Rise on your toes, and try to reach still higher with your head. Never sit or stand in a cramped or slouching position, but always give all parts of the body room to expand and to function properly. Walk, if possible, between your home and place of work, wearing comfortable low-heeled shoes for the protection of the feet. During the winter months, join an evening class in a nearby gymnasium where you will have regular exercises and games and dancing. Get a group of young people together and form a class for the American country dancing which Mr. Ford has popularized this year and which is an excellent form of recreation. Spend Saturday afternoon and a part of Sunday out of doors, participating in some sport. In the winter there is skating, snow-shoeing, skiing, toboganning or hiking. In the warmer weather when the ground is clear, there is a far greater choice: water sports — swimming, rowing, paddling; such games as tennis, golf and cricket, opportunities for which you will find in many of the public parks as well as in private clubs; games which you may play in your own yard — quoits or horseshoes, archery, volley ball, ring tennis, newcomb, duck on the rock, etc., through a long list of games which may be adapted to small yards and a few people.

Do not forget the always beneficial setting-up exercises to be done in your own home when no other regular means of exercise is available. The "Daily Dozen," the morning radio exercises, may be used with a little discretion and a knowledge of one's physical fitness. In this connection the idea of the yearly "health examination" for young and old is growing very popular. Such an examination will give you an understanding of the condition of the important functions of the body and will show you how far you may go in work or play without over-exertion and strain.

How are you planning to spend your vacation? Are you going to the type of summer resort where you will need an abundant new supply of summer clothes, and where you will have little else to do than to show these clothes in the rocking chair on the porch, on the board walk, in the dance hall or the movie theatre? Or are you going to one of the many summer camps which offer you a new life of freedom and joyous contacts with all outdoors. Just forgetting for a moment their health advantages, think what fun it would be to live all day in knickers and all that goes with a camp costume, to sleep at night with nothing between you and the sky but a tent, to wake every morning for a quick dip in the lake before dressing, to eat marvelous vegetables and fruits that are just out of the ground or off the vine and real cream and fresh butter and eggs, and to spend the day and evening with other happy young people in tramping over the country, swimming, boating and playing games, or in just lazily resting. This is the kind of real living which you will remember all during the winter, and look ahead to repeating the coming summer. It is the kind of vacation which builds and stimulates and re-creates.

Make a hobby of play. Try to become skillful in just as many games as possible. Take recreation seriously in so far that you may thoroughly believe in it as a part of your life, but not so seriously that you will lose from it any of the joy and inspiration which should be a part of it. Recreation adds years to life and life to years.

PAINFUL MENSTRUATION.

By Samuel R. Meaker, M.D., Associate Professor of Gynaecology, Boston University School of Medicine.

THE human body is a very complex machine which, in these days of advanced civilization, is often forced to run at high speed and under considerable strain. As a result we frequently find that in some particular or other the body does not work as easily and perfectly as it should, because a *disturbance of function* has developed. The derangement may show itself in any bodily function — the digestion or the circulation, for example. One of the commonest functional disturbances is pain or other difficulty in connection with menstruation, and this is known in medical language as *dysmenorrhoea.*

Just how commonly dysmenorrhoea is found to occur will depend, of course, upon how we define the term. If by it we mean any discomfort whatever at the menstrual period, even the slightest, then there are few women who escape. If, on the other hand, we mean a condition of excruciating pain and of complete prostration lasting for several days, then it is comparatively rare. It seems to me that, for practical purposes, we may reasonably regard dysmenorrhoea as a degree of menstrual discomfort which to any extent interferes with a woman's normal mode of life or prevents her from engaging in her usual occupations, whether these are domestic, industrial, or academic.

So considered, the complaint is one from which considerably more than half of all women suffer at some time in their lives, usually during girlhood or young womanhood. Clearly, then, it is an exceedingly prevalent ailment, and for that reason alone deserves serious attention. Not only does it cause an enormous sum total of suffering, most of which could be prevented, but it also entails great inconvenience because of periodic disability. In any large group of girls such as a school or industrial organization, an absenteeism of one per cent of the total enrollment per day is due to this cause alone.

In years past it was rather the custom to regard painful menstruation in young girls as more or less natural, and to do nothing about it. Modern women are, fortunately, much more sensible. They realize it is neither wise nor safe to neglect an obvious fault in the functioning of the body.

Doctors who have carefully studied dysmenorrhoea know that the cases fall into two general groups. In the first, there is some disease of the female organs — inflammation, tumor, displacement, or some other definite local trouble. In the second group the female organs are in every way normal, and the trouble is fundamentally a matter of overstrained or ill balanced nerves.

From the character of the patient's symptoms, and without a local examination, the physician can usually tell in which group a given case belongs. If it appears that the case falls into the first of our two groups, then there must be an examination and local treatment, not only to correct the cause of the dysmenorrhoea, but also to prevent the development of more serious trouble in the future. If, however, the case belongs in the second group (as do eighty per cent of such cases among unmarried girls), then treatment will be along general medical and hygienic lines, since there is, of course, no need for local interference with normal organs.

Every menstrual sufferer should understand that her trouble can be relieved, and relieved probably by methods of treatment that are comparatively simple. Knowing this, only a desire for voluntary martyrdom will permit her to neglect the condition, or to experiment with worthless advertised medicines.

In closing, let me say a word about the menstrual hygiene of the girl whose periods are painless and normal. It is, in my opinion, a mistake to regard the healthy menstruating girl as "sick" and to make a practice of treating her as an invalid. Perfectly natural menstruation should cause no more derangement than the performance of other natural bodily functions. If the ordinary mode of life is hygienic and well arranged, it need not be modified in any way at the time of the period. There is no reason why tepid tub-baths should not be taken. Naturally, extremes of exertion, fatigue, or exposure are to be avoided. The distinguishing feature, however, of normal menstruation, as contrasted with dysmenorrhoea, is that it does not interfere with the normal activities of a healthy girl.

MENTAL ATTITUDES IN BUSINESS AND INDUSTRIAL LIFE.

By Henry B. Elkind, M.D., Medical Director, Massachusetts Society for Mental Hygiene.

THE typical working girl of today is difficult to describe. To advise her, therefore, is not easy. One may, however, discuss with profit one or two of her more important problems.

Many girls leave school to go to work because school has seemed to them irksome. After working for some time these girls lose the sense of novelty and the sense of freedom which work first gives them. They wonder why they have to work at all and their thoughts, stimulated by observing their apparently more fortunate sisters who do not work, oftentimes run in a pessimistic vein, causing them to feel that they are unfortunate in being obliged to work. Every working girl should instead remember that for her as for others it is far better to work than to be idle; that there are many who, while idle and apparently happy, are not happy.

The healthy girl should not run away from work. She should find that type of job which interests her and at the same time gives her the greatest return for her efforts. When on a job, she should do her best; she should try to be as productive as possible because not only does the firm for whom she works benefit, but she herself does. She benefits because it has been found that work, certainly as generally organized at the present time, is not necessarily fatiguing but is frequently so only because of the mental attitude of the worker. It therefore behooves the working girl to examine herself to determine whether her mental attitude toward her work is what it should be. If she is ambitious and wishes to get ahead, she can hardly expect to do so if she is not productive. Therefore, in justice to herself and to her employer, she should cultivate a healthy mental attitude toward her work, toward her employer, and toward herself.

Under present conditions the average length of the working day is approximately eight or nine hours, leaving about eight hours for sleep, which is the ordinary amount required by the average adult, and six, seven, or eight hours for recreation including time for meals and other minor duties. What happens during these hours of recreation is of extreme importance to the working girl, as to all others, because it influences her ability to work, her attitude toward life, and her physical health. During these hours of recreation it is well for the working girl to develop some outside interest which is foreign to the work by which she earns her living. This does not mean, however, that it is not worth while for the young worker to study in her free hours in order to prepare herself for more desirable or for more skillful work. If the working girl keeps her time filled with productive moments both in working and in thinking, she will reach a level of living which is not only efficient but which will give her a full measure of happiness.

SOCIAL RELATIONSHIPS.

By Robert W. Kelso, Executive Secretary, Boston Council of Social Agencies.

FROM the point of view of her social relationships, the American business girl is a person of at least four distinct needs.

(1) In order to hold her place she must be physically strong enough and mentally adaptable enough to stay steadily on the job.

(2) In order to keep her physical health she must have nourishing food in sufficient quantity, with regularity, and well enough selected to keep a normal stomach digesting properly in spite of a good deal of fatigue and frequent loss of sleep.

(3) She must have a fair amount of undisturbed sleep, not bunched at either end of the week or in the middle, but spread out over seven nights.

(4) In order to preserve wholesome social ideas and retain her faith in the enjoyability of life, even a work-a-day life, she needs recreation in company with others, especially men.

How many of these needs will she satisfy if she has to lift herself by her own garters, so to speak?

Broadly speaking, the working girl, like the working boy, is an individual of strong desires; of a great hunger for life; and of relatively weak judgment. Many working girls live at home; but a vast number do not. For these — indeed for almost all, whether home dwellers or not — the rising hour is the last call on a carefully calculated scramble to reach the time clock. Breakfast is an affair of three or four minutes; and the rush to work is filled with too much pushing and shoving and worry to be of much help to the digestion.

Luncheon is not much better. In order to save as much of the hour for herself as she can she crowds her lunch — bolts it, in fact — and is not apt to select dishes that require careful mastication or to give it if they do. The idea of a balanced ration is one of those funny things not found outside the "nut factory" or the cook book. Dinner is necessarily more substantial; but almost invariably the only judgment exercised in its selection is displayed by the restaurant chef in arranging his "combinations."

If left to herself, therefore, the average business girl is not likely to provide herself with nourishing food in sufficient quantity, with sufficient regularity, and well enough selected to keep a normal stomach digesting properly in spite of a good deal of fatigue and frequent loss of sleep. Yet food is the first and most natural consideration.

It is probable that food difficulties rank only second among the causes of low efficiency among working girls, and that the first is lost or irregular sleep. A young girl who spends all her day from nine till six behind a counter, at a wage which will buy her food and clothing, pay her rent, and allow her to wear silk stockings (but requires her to do her own washing and be exceedingly careful of every cent) must have recreation in her evenings to keep life from souring altogether. And it must be cheap recreation, or else it must be paid for by someone else, a young man perhaps. This is the eternal problem of the working girl — how to keep the necessary balance in life and yet live within her small income and keep herself free from obligation to persons who might take her at a disadvantage.

If such a girl tries to get a complete change and lose herself in excitement by going to a cheap dance hall, she stays too late for her health; tires herself out by over-exertion after her day's work; and is likely to meet the wrong people. If she cheapens the process a little by going with a girl pal to the movies, she can forget herself while there, but she has spent all her evening in a room filled to capacity with people, after spending all her day indoors where hundreds and perhaps thousands of individuals help her breathe the air. She goes home still more dissatisfied with life, because she sees the opportunities of the rich and the idle temptingly shown on the screen and cannot see that life will ever be anything but a daily grind for her.

Under these circumstances it is quite natural to covet a friend who has a car and to go with him to the darker byways of municipal neglect.

It is somewhat unusual to think of a girl's carelessness in seeking absorbing pleasures as one aspect of the ventilation which her employers have provided for her place of occupation; as a feature of the amount of light delivered to her counter or machine, giving her eye-strain and a general consciousness of gloom or the reverse. Perhaps the doctors cannot find a causal relationship. Nevertheless, from the point of view of social contacts a girl's power of resistance and her reactions to the stimuli which mean life to her are colored deeply by just these basic health factors of her employment.

These are the days of commercialized recreation. All the working girl's leisure time has long ago been capitalized and organized, and is sold back to her at so much per hour. In a limited way she can pick and choose by going to a settlement house, a girl's club or other community effort at clean and wholesome recreation; but these are not the line of least resistance. For the most part she must take the shows that are given her, the outings that are arranged by corporations, and even the friends who are thrown into her limited field of contacts. If, therefore, her day's work contains only a hated discipline of duty — a round of hours necessary to make a living but not otherwise attractive, she will live her real life outside the store or the factory where she is employed. She will seek pleasures that drown the thought of the hateful day's work. With her poor judgment, the result is pretty sure to be hard on her physique and wearing on her health.

The obvious answer to all this is that more attractiveness must be put into her day's work. The two greatest forces able to conserve and advance her condition are industry and the public school. The school is slowly awakening to the fact that the curriculum of the future must be reorganized and made to rest upon a basis of sound health education, the inculcation of sound health habits in the child — this for the working girl of the future. For the business girl of today industry must change its time-honored attitude of responsibility limited to wages.

It is a common fallacy to look over a couple of hundred counter girls in a department store and say that because they are all active, laughing and apparently cheerful, therefore they are all healthy and free from worry. Many a girl in that room is laughing to keep up her courage, just as a little boy whistles when he goes for the cows in the dark.

Some little progress can be made through precept, teaching young women the common-sense health program; much more can be done through the girls' club, and other community efforts to encourage wholesome social contacts: but much will undoubtedly be done through industry itself.

An industry employing large numbers of girls will find that it pays to feed its employees at cost. The old idea that the management owes nothing but wages is discovered in these modern times to be exceedingly poor business. Human values, to be discovered in loyalty, cheerfulness, ambition, graciousness and courtesy toward the customer — these results are worth more money than mere time-serving and the doing of things mechanically well. But to get them, industry must study its help and serve it. Such qualities cannot be gained by orders posted near the time clock.

The working girl needs a confidential health friend. It can well be someone responsible to the employees' association and to the management jointly — a confidant to whom troubles of all kinds can be told, and real help received. One of the commonest discoveries in social work is that the need for case work which confronts the agent today might have been prevented by sound advice given yesterday or at the inception of the trouble. Much is already being done in industry which looks to the preservation of these valuable human factors. Much remains to be done. The mercantile health experiment, carried on for the past five years in twenty-five department stores under the direction of Arthur B. Emmons, 2d, M.D., affords ample proof of the business expediency of meeting the needs of working people, especially on the score of their physical health, in order that they may render for their wage a service that is more regular and more efficient; and to the end, also, that they may live their lives with more courage, more happiness, and a greater promise for the new generation which they must bear.

EDUCATION FOR HEALTH.

By Arthur B. Emmons, 2d, M.D., Boston.

HOW can the business girl be helped to arrange her life so as to conserve her most valuable asset — her health?

Two people are involved in solving this difficult problem, the girl who must be helped to live her own life, and the person who knows about healthful living and who understands her life.

The ideal arrangement to work for, perhaps all will agree, is to have a health confidant to consult periodically — a personal health officer. The future may make that ideal a reality.

Lacking a health consultant, what can now be offered? From the point of view of the business girl, a most suggestive small book has appeared, "Health Confessions of Business Women," by Business Women, Division of Industrial Hygiene, Provincial Board of Health of Ontario, Spadina House, Toronto. This little classic contains over two hundred answers to "Suggestions towards Health," a prize competition for business women. Everything feminine is discussed from the comparative value of powder and rouge and soap and water to philosophy of health and good humor.

A leisure-time weekly accounting chart is appended with the suggestive heading, "How I could get plenty of time for development, mentally, physically, spiritually and socially, if nothing went wrong and there were no outside demands on me."

The winning letter contained two key-stone points,— (1) congenial employment is essential to health; and (2) in leisure time business women should "revel" in recreation.

The health adviser of a business girl must recognize the limitations of energy, time and expense in health care and try to aid by eliminating unessentials and emphasizing necessities. A technic of life is essential to success. This technic will include time for recreation, reading and other pleasures to overcome the monotonous routine of business hours. Broad variety of interests should be the aim. Each individual girl should choose her own diversions, develop her aptitude or hobby and plan to obtain them in her time off.

The factors necessary for health, happiness and efficiency as given in these business women's letters are summarized briefly as follows:

A philosophy or religion on which to pin her faith.
Time to become acquainted with herself.
Congenial work where her talents are used and where she can respect the work she does.
Outside interests, such as service to others.
A hobby.
Opportunity to develop any talent or taste, such as music, reading or athletics.
Congenial acquaintances and stimulating friends.
Occasional frivolity.
Medical care and supervision of organic disease or special disability, including eye troubles, and care during occasional illness.
Routine dentistry — prophylactic and curative.
A quiet, airy locality in which to live.

A housing scheme that makes either social intercourse or privacy possible as each is required.
A heated, comfortable room, bedroom or otherwise, in which to spend the evenings.
A well ventilated bedroom to herself and an average of eight hours sleep a night.
Easy access to a bathroom with opportunity for a daily bath and a toilet available each morning.
A variety of well cooked food at regular hours.
Good working conditions — ventilation, light, suitable desk and chair, an accessible rest room, avoidance of overcrowding, and efficient office management.
Suitable clothes for all seasons and occasions, both work and social.
Time for mending and facilities for laundry.

Each individual will place slightly different relative values on these items. Often a sympathetic outsider may aid in placing due emphasis on essentials and advise neglect of unessentials. The age of the working girl or woman may determine largely this emphasis. The younger girl may need no urging for social recreation but may need caution for neglect of health. The older woman with health habits well established may neglect her social needs.

The well balanced girl will naturally select the most important things first. The emotionally unstable may need a friend's counsel to prevent warping her nature. The experienced will live moderately and temperately, the young may resist this tendency and pay the penalty of excess. Late hours more than two nights a week is found to be excessive.

CONCLUSION.

On the establishment of health habits largely depends the success in conserving health. These health habits depend on each individual's nature and the requirements to satisfy that nature. Youth often puts undue emphasis on social pleasures which lead to excess. A planned technic of life is the safeguard on which reliance may be placed. In establishing this technic of life a sympathetic, understanding adviser, preferably with a knowledge of hygienic values, may be of great assistance. If such adviser be given the opportunity to make a health examination to check up bodily functions every year or two, he or she will be better prepared to advise intelligently.

The great need today, not only for the business woman but for everyone, is a satisfactory health adviser — a personal health officer.

MATERNAL AND INFANT HYGIENE SECTION.

COMPILED BY SUSAN M. COFFIN, M.D.

Combining Nutrition and Dental Hygiene at a Well Baby Conference.

BY ELEANOR B. GALLINGER, S.B., D.H., MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

GOOD teeth are built, not brushed. Good teeth are heralded everywhere as aids to beauty and health. Signposts by the side of the road, pages in every magazine, pictures on every street car remind us of the importance of our teeth, but these are often very misleading to the public. We cannot make our teeth strong by brushing them, any more than we can make a brick house by painting it red. For years the teeth have been considered as a thing by themselves, to be brushed when they appeared and to be filled when they had holes. As a result, numerous tooth paste companies with their ever-present advertisements have developed, along with holes in ever-increasing numbers in our teeth. Strong teeth and healthy mouths are but parts of strong healthy bodies. The teeth, just as the bones, are formed and developed during the prenatal period and early years of life. It is during these years that we must concentrate our efforts if we are to make any impression on the great problem of dental decay.

Dental hygiene and nutrition are inseparable, for the foods that build strong bodies build strong teeth. The avenues through which we can spread this new gospel of prevention are not numerous, for most of our organized health work in this state is done through the schools. When a child enters school at the age of six the matter of his teeth for better or for worse has been decided. To quote Dr. Quinby of Boston, "The teeth in our jaws form a wonderful machine and like any other machine the parts must be kept clean." Obviously it is the building that is of first importance. If you are old enough to read this article you are too old to profit personally by its advice.

We must work from our schools down to the pre-school child, to the infant and finally to the prospective mother. The Well Baby Conference offers itself as one of the best ways of reaching the pre-school child, the infant and often the prospective mother. In a few moments given to every child the double message of good teeth and good health can be connected with the advice concerning the value of plenty of milk, fresh fruit and vegetables and dark breads and cereals. This single contact may be limited in its value, but the mere linking of teeth and food, instead of the proverbial teeth and tooth-brush, in the mother's mind may start the ball rolling in the right direction. The dental situation encountered at a Well Baby Conference is quite typical of that throughout the country and has been reviewed elsewhere. Now and then we notice improvements in deciduous teeth and hear that the mothers in that locality have had special prenatal care or we find a dentist or dental clinic that is doing the kind of work that we recommend; but more often we do not. This latter situation is bound to improve, for the Massachusetts Dental Association has taken a new stand urging children's dentistry and advising every dentist to make this an important part of his practice.

As the advice given each child at the conference varies with his age and special needs I will outline briefly the underlying facts that are considered most important and that are stressed most often.

Prenatal Care.

Teeth begin to develop the third month of pregnancy. When the baby is born the enamel for his first set of teeth and for the crowns of his six-year molars are all made. If the mother eats the proper food and has a strong body she will be building strong teeth for the baby as well as protecting her own. There is absolutely no need for a mother losing a tooth for every child as so often happens. Unless the mother has special directions from her physician we advise the following outline for her daily diet:

Milk — one quart daily, used in cooking and to drink.
Fresh fruit.
Vegetables, especially the green, leafy ones, such as spinach, lettuce and cabbage.
Dark coarse cereals and breads.
Egg — one daily.

Care of the Mother's Teeth.

It is also of greatest importance that the mother's mouth be in as healthy a condition as possible. Apical abscesses and their toxins may injure the growing foetus and will lower the mother's general health. The three points we emphasize are:

1. An early examination. To be sure there are no abscesses or badly decayed teeth the mother should visit her dentist or a clinic the first month of pregnancy if possible.
2. She should revisit the dentist every month of pregnancy in order that her mouth may be kept in a healthy condition. Extensive extractions or fillings are not advisable at this time, but the removal of tartar and the toning up of the gums are very important.
3. We advise postnatal examination and treatment as soon as the mother is strong again. At this time extractions and fillings can be done and this will protect both the mother and the next baby.

Breast Feeding.

Breast feeding bears a very definite relation to good teeth. Breast milk contains the tooth-building minerals, the principal one being calcium which is more easily assimilated by the baby than the calcium in cow's milk. Feeding at the breast instead of from a bottle develops the baby's jaws, making the arches larger, and is therefore the safeguard against the crowding of the second teeth later in life. Breast feeding also develops the face and throat muscles of the baby. They are all the baby has to chew with during the years that he is growing fastest and needs the most nourishment. Decayed first teeth mean imperfect mastication and poor digestion. Infected first teeth may infect the second teeth that are developing in the jaw. First teeth that are neglected and have to be extracted hinder the normal growth of the jaw, causing the second teeth to come in crooked because they have no guide.

Building Strong Teeth.

The years from two to four are most important from the tooth aspect, as these are the years when the permanent set is being formed. Then it is that the tooth question for the child is determined once and for always. We are recommending cod liver oil for all babies, breast or bottle fed, from three months on. At three months also we recommend adding one teaspoonful of strained and diluted orange or tomato juice to the daily nursing, this amount to be gradually increased — at six months adding cooked strained cereal with the 10 o'clock feeding; at seven months adding cooked strained green vegetable with butter or milk to the two o'clock feeding. From two years on, for the rest of his life the child should have the same milk, fresh fruit, green vegetables, dark bread and cereals that we recommended for his mother before he was born.

Early Dental Care.

Perhaps the most important thing concerning dental hygiene that we are telling our mothers at the Well Baby Conference is that of the necessity and importance of early dental treatment. The light of research has shown us several very startling facts concerning the decay of teeth. We now have definite information ready for the public that, if really applied, will do wonders for the teeth of the next few generations. If the diet of the mother or child does not contain such tooth-building material, or when for some other reason the general metabolism is poor, the enamel of the tooth is imperfectly formed. When these teeth erupt they have tiny cracks called fissures in their crowns at the bottom of the grooves. These fissures are formed by the failure of the layers of enamel to come together. Ninety per cent of all cavities start in just such fissures. Brushing the teeth has no effect as these fissures are so tiny that the brush does not reach them. If the mother will take her child to the dentist the day that a tooth comes through he can examine it with a needle-point explorer, detect these little defects, fill them and practically guarantee that that tooth will remain strong and sound the rest of the child's life. This will mean less money for dentists' bills, strong sound teeth and better health for the child. Every day counts with these tiny fissures as decay starts quickly although it may not be noticeable and it has a rather insidious way of working under the enamel. If all fissures were filled we would have no more toothaches, and we would be soon sending our children into high school and college with four sound six-year molars. The dental profession is pushing the program of children's work which means the filling of fissures and if our clinics will follow their lead, we will be making real progress toward better teeth for the children of Massachusetts.

The Health Gnome Says:

Her burden is heavy and light is her purse,
She laughs at her tasks, they might well be worse;
She keeps her temper out of reverse;
This walker of miles, this purveyor of smiles,
The — State — Health — Nurse.

—*"The Listening Post, Pennsylvania Department of Health."*

Impressions from the Annual Conference of Directors of Maternity and Infancy Work.

CHILDREN'S BUREAU, JANUARY 11-13.

It was a striking fact brought out in this conference that the diversity in state programs could be so great at the same time that the resemblance between them is extremely close. All are aiming to meet the needs of child-bearing mothers and of young children in the ways found through experience to yield the best results under existing conditions and all are developing one or another means for informing the general public in matters important in maternal and infant hygiene. Conditions naturally vary in states whose populations are so widely at variance as Nevada with less than .7 to the square mile and Rhode Island with 500.

Perhaps the outstanding impression left with at least one of those attending this conference was the increasingly strong emphasis placed upon the period of prenatal life as the time of all others when well directed effort will with certainty be followed by definite and far-reaching results. Even in the field of neonatal mortality where much still remains to be learned we had strong evidence that careful attention to the hygiene of pregnancy including the application of recently acquired knowledge during the entire period of prenatal life is being rewarded by a gradual decline in the death rate for the first month.

The Standards of Prenatal Care which have been prepared at great pains by a committee of which Dr. Robert L. DeNormandie was chairman, may fulfill a large purpose by bringing to the attention of physicians certain definite and specific procedures which in the judgment of the members of the committee (all physicians of wide obstetric experience) are essential to the safe progress of mother and babe through the period of pregnancy. These Standards, it was stated, will be sent to each physician in the country so far as it is possible to reach them.

Doctor Adair of Minnesota, unfortunately detained in his own state, sent his paper in which he laid great stress upon the necessity for a larger vision of prenatal care. Upon the quality of care given to the pregnant woman and the extent to which such care is made available to all citizens depends in large measure the advancement of the human race and the elimination at its root of preventable disease.

Prenatal care should be regarded as a means to an end, never as an end in itself. It should involve far more than mere physical care by physician and nurse. Environment, occupation, recreation, and often large social problems must be taken into account. There must be too a sense of responsibility on the part of the community to bring prenatal care within the reach of all.

Progress in the Children's Bureau Study of rickets as a community problem, now under way in New Haven under the direction of Dr. Martha Eliot, was reported by her.

Early signs of rickets were found in 90% of the babies observed. Doctor Eliot showed convincingly that the use of cod liver oil with direct exposure to the sun's rays of the child's skin will prevent the development of the more advanced signs of rickets. These measures have not, however, altogether prevented the appearance of early signs of the disease as detected with the help of the x-ray.

It has further been demonstrated that cod liver oil can be taken without ill effect by practically all babies at all seasons of the year, and that all children can be exposed to direct sunlight with benefit and without injury between March 1 and November 1. When babies are accustomed to such exposure to the sun's rays it may be continued even during the winter months, but it has been found to be impracticable to expose new babies extensively during the cold winter months.

Alluring glimpses of future developments in knowledge of the vitamins were given to the conference by Miss Nina Simmonds of the Johns Hopkins School of Hygiene and Public Health. Recent experiments with the newly discovered vitamin E seem to indicate that this vitamin, contained in wheat germ oil, is as essential to successful reproduction as vitamins A and B have been proven to be to body nutrition.

One conclusion derived by Miss Simmonds is that too little attention has been given to the diets of nursing mothers. She threw out the suggestive hint that progressive pelvic deformity, due to dietary deficiencies, might quite possibly be a factor in prolonged and difficult labors.

Much food for thought was left with us after this discussion and we shall watch the experiments of Miss Simmonds' laboratory with growing interest.

Doctor Thom convinced everyone in the conference that it is only a short-sighted community that allows its public monies to the extent of twenty cents of every dollar spent to go for the care of the mentally diseased without making an attempt to remove some of the preventable causes of such a lamentable state of affairs.

He pointed out that it is during the pre-school age that children's mental characteristics are such as to make possible a complete refashioning of character, thereby probably preventing much of mental disease, of delinquency and of the emotional twists which now lay a heavy burden upon the community.

Doctor Stadtmuller of California outlined a most successful campaign for the examination of the pre-school child before entering school, while Mrs. Hasbrouck made us wonder why other states have not adopted the slogan of Wisconsin, "Every girl educated for motherhood."

Feeding the New-Born.

The small amount of breast milk available the first few days is not an adequate reason for weaning the baby. If there is apparently too little breast milk at this time, let the baby nurse, weigh before and after nursing and furnish a sufficient amount of a complementary feeding to supply the necessary calories based on the weight and age of the baby.

There are only two indications for weaning the baby which are absolute, i.e., inability to obtain breast milk and active tuberculosis in the mother. "All other conditions, such as renal disease, cardiac disease, anemia, post-partum hemorrhage, puerperal convulsions, epilepsy, insanity, malignant disease, acute infectious diseases, syphilis, menstruation, and subsequent pregnancy are only to be considered as contraindications to maternal nursing depending on their severity, the general physical condition of the mother and the environment."

By J. F. Sinclair, M.D.,
Archives Pediatrics, April, 1926.

Correspondence Course in the Hygiene of Maternity and Infancy.

The Massachusetts State Departments of Health and of Education, through the State Division of University Extension, are the sponsors of a new correspondence course in hygiene for prospective mothers, which should prove of great benefit to both individuals and the community. It may be taken with profit by nurses also.

The course consists of fifteen chapters, or lessons, which are furnished at a nominal charge of $4.00 to persons who enroll for instruction by the correspondence method, as provided by the State Division of University Extension. Among the topics treated in the course are, prenatal care of mothers, conditions during pregnancy, practical preparations for confinement, labor and the lying-in period, early care of the baby, the nursing mother, the sick baby, weaning.

The papers written by persons enrolled in the course will be corrected, with necessary comments and suggestions by an experienced physician on the staff of the State Department of Public Health.

Enrollment may be made by sending enrollment charge of $4.00 (by cheque or money order) with name and address to James A. Moyer, Director University Extension, 217 State House, Boston.

THE COMMONHEALTH

Quarterly Bulletin of the Massachusetts Department of Public Health.

Sent Free to Any Citizen of the State.

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Frances Klein, S.B., Associate Editor.
Room 546, State House, Boston, Mass.

New Dental Hygiene Policy. — Dental hygiene, as we know it today, has not developed under any carefully thought-out policy. Rather, it has grown largely as a result of popular interest. Furthermore, dental hygiene has generally been supposed to be bound up somehow with dental clinics.

It is now coming to be recognized, however, that the average dental clinic has little to do with hygiene in the strict sense of the word. It is usually merely a highly specialized branch of surgical dispensary, necessary in its place, but its place is not in the school or health department.

Satisfied that dental hygiene is something beyond cleaning or filling teeth, and fortified by the advice and cooperation of the Massachusetts Dental Hygiene Council, the Massachusetts Department of Public Health has established a definite dental hygiene policy. The essentials of this policy are:

(1) An effort will be made to impress upon both public and private agencies the importance of dental and nutritional care during pregnancy, infancy and early childhood.

(2) Boards of health now conducting dental clinics will be urged to concentrate on the pre-school child and the prospective mother; to do only emergency work for children over seven years of age; to fill all fissures and pits immediately after eruption; to extract all teeth not amenable to "simple fillings"; to stress the importance of periodic examinations; and lastly and most important, to carry on the clinic only so long as is necessary to introduce and make more attractive and forceful the educational program.

(3) Boards of health which are not now conducting clinics are advised not to start them but to confine themselves to the educational work of the dental hygienist, referring all cases needing actual dental treatment to private dentists or dispensaries.

(4) Private agencies carrying on dental clinics are advised to stress in their work the care of the pre-school child and of the prospective mother. They are urged to make their work self-supporting.

(5) The State Department of Public Health offers
  (a) The consulting service of a Dental Hygienist.
  (b) Dental educational material.
    (1) Printed material.
    (2) Posters.
    (3) Slides.
    (4) Exhibits.
    (5) Moving pictures.
  (c) A lecture service to selected groups.
  (d) Assistance in State Well-Child Conferences stressing the nutritional side of dental hygiene and the importance of early dental care.

New Dental Hygiene Exhibit. — To be consistent with its new Dental Policy which states that it will "furnish information concerning the relation of nutrition to tooth development to the public," the Massachusetts Department of Public Health has planned and developed a new dental hygiene exhibit.

This new exhibit consists of two factories: the "Well Built Tooth Factory" and the "Poor Food Tooth Factory." These two factories with their little carts of supplies, their attractive or barren yards, different departments, and final shipping of teeth to "Jawville," tell in a vivid and graphic way the story of what is happening in the mouth and jaws of every child from two to six years (according to the kind of diet which the child is getting). We must get the message to our mothers and children that strong teeth are built, not brushed, and how better could this be done than by a toy factory with one side removed so that one can see the whole process revealed?

The Well Built Tooth Factory is surrounded by a fence of white milk bottles, sturdy and strong, and a lawn of well-kept green grass. At the left in the yard a cart is standing full of fruit and vegetables from the country ready to be unloaded for the *Supply Department* which is the first floor of the factory. Here vegetables, fruit, dark bread and milk are sorted into neat piles and sent up little chutes to the floor above which is the *Digestive Department.* This floor has a large kettle in the center in which all the goods are digested and from this kettle run little tubes carrying the various minerals, calcium, magnesium, phosphorus and the material for good red blood into separate boxes. These boxes are full and nearly overflowing. On the floor above, the *Construction Department,* we see the teeth actually being made. First the pulp, then the dentine and lastly the enamel which is hard, white and perfect. The teeth are carried up a little ladder to the next floor where they are polished and passed to the next room where they are examined for cracks or defects. If any are found they are discarded, as only perfect teeth are shipped from this factory. Finally the teeth reach the last room of the factory where they are arranged in perfect sets, packed in boxes, and sent down a big chute to a truck waiting below. The sets are delivered at the specified time to the people who live in "Jawville."

The other factory, the Poor Food Tooth Factory, presents the other side of the story. Here the workmen are tired and lazy. They are trying vainly to make good teeth without the right materials to work with, and without plenty of air and sunshine. This factory has a brown and yellowish green color scheme and is surrounded with a dingy fence of coffee pots. Its supply wagon is full of candy, potatoes, coffee and meat. The Supply Department is not kept in order. Only a few things go up the chute to the Digestive Department and the rest are tossed into a large box labeled "waste." On the next floor the worker is trying hard to get enough minerals out of the kettle, but he does not succeed, and the boxes for Calcium, Magnesium and Phosphorus are only half full. In the Construction Department we see the result of this lack of supplies in the little cracks appearing in the enamel of the tooth. On the top floor a workman patches the worst of these cracks, and in the packing room the teeth are tossed into big boxes in a haphazard fashion and dropped down the chute. Unlucky is the person who receives a box from this factory.

Medical Service for Rural Communities. — There has been some uneasiness of late regarding the future of the medical situation in rural communities. Undoubtedly there is a tendency for physicians today to settle in the larger communities. The Board of Registration in Medicine recognizes this, and on April 9, 1926, sent out the following letter:

To the Chairman of the Board of Health:

In order that each rural community in Massachusetts may obtain sufficient medical service, this Board is instituting a plan to make this more possible.

The Boards of Health in all towns and cities of Massachusetts, 5,000 and under in population, may make this service available by signifying their desire to the Board of Registration in Medicine.

Each medical graduate, as he becomes registered by this Board, is to file a card in this office stating his probable future location, or his desire for one.

To those towns and cities which wish additional medical practitioners, the names and addresses of each of the registrants who desire locations will be sent to the local Board of Health.

If you wish this service for your community, please sign the enclosed card and return to this office.

Yours very truly,

(Signed), FRANK M. VAUGHAN.

Dr. Frank M. Vaughan, *Secretary.*

(Card to be filled out by Board of Health.)

Date.....................................

Please send us until further notice, names and addresses of medical graduates registered by your Board, who desire location.

....
Chairman, Board of Health.

....
City or Town.

Ventilation of School Buildings. — Discussion has started anew over the subject of the ventilation of school buildings. For many years we have been under the domination of an idea, and that idea has been that we had a reliable standard by which to measure the fresh air needs of the school child. It even got to the point where we were being so meticulously accurate as to talk about thirty cubic feet per child per minute.

Now along comes the American Public Health Association with an assertion to the effect that our beloved standard is merely another example of meticulous *in*accuracy, that it is based on theories which will not hold water regarding carbon dioxide in the air, and that in all probability a very much lower standard could be maintained with perfect safety and great saving to the taxpayer.

The real evidence so far seems to be in favor of the American Public Health Association contention. Lower school room temperatures and open window ventilation seem to be better for the child so far as medical observation can determine this point. It is to be hoped that if any scientific evidence to the contrary is at hand it will be speedily forthcoming in order that steps may be taken to readjust State and local statutes or regulations to conform more nearly to the facts as they are at present understood.

Health Standards for Schools. — Of interest to health workers are the following resolutions and extracts from the annual report of the Committee on Hygiene and Physical Education, Massachusetts Teachers' Federation. The Committee goes on record as favoring:

First: A larger recognition in the curriculum of Health Work and Physical Education.

Second: Such arrangement of schedules, particularly in the Junior and Senior High Schools, as will place pupils in classes suited to their age, development and experience.

Third: That Health and Physical Education be included in the number of points required for graduation with recognition of this work on the report cards.

Fourth: That this vote be sent to all Superintendents and Principals in the State and to the newspapers.

William Thompson Sedgwick Memorial. — In recognition and perpetuation of the services and ideals of Professor W. T. Sedgwick, and in love for the man, his friends desire to create a permanent remembrance. A group of these friends began the accumulation of a fund for the permanent endowment of a Sedgwick Memorial Lectureship. The lectures are to be given at least once a year upon some subject in biology or public health. The three lectures in this series to date have been given by E. B. Wilson, W. H. Welch and W. J. V. Osterhout.

A second group of friends have met and formulated plans for a Sedgwick Memorial Medal to be awarded not oftener than once a year for distinguished service in public health. This plan was laid before the Governing Council of the American Public Health Association and through this body the Association voted to accept the responsibility for administering the funds and awarding the medal through an appropriate committee.

Friends contributing may give to either project or designate the division of their contribution if desired. If no division is indicated the gift will be equally divided in support of both of these undertakings.

REPORT OF DIVISION OF FOOD AND DRUGS.

DURING the months of January, February and March, 1926, samples were collected in 116 cities and towns.

There were 672 samples of milk examined, of which 278 were below standard, 14 samples had the cream removed, and 4 samples contained added water.

There were 895 samples of food examined, of which 170 were adulterated. These consisted of 32 samples of clams which were watered; 5 samples of dried fruits, which contained sulphur dioxide, not properly labeled; 45 samples of eggs, 35 samples of which were cold storage not so marked, and 10 samples were sold as fresh eggs but were not fresh; 1 sample of jam which contained sand; 1 sample of jelly which was misbranded; 17 samples of sausage, 4 samples of which contained starch in excess of 2 per cent; 11 of which contained a compound of sulphur dioxide, and 2 of which contained coloring matter; 11 samples of hamburg steak, all of which contained a compound of sulphur dioxide; 3 samples of soft drinks which contained saccharine; 47 samples of cream, 41 of which were below the legal standard, and 6 of which contained a foreign substance; 6 samples submitted by the Department of Agriculture which proved to be oleomargarine; and 2 samples of maple sugar adulterated with cane sugar other than maple.

There were 45 samples of drugs examined, of which 18 were adulterated. These consisted of 2 samples of lime water, and 12 samples of spirit of nitrous ether, all of which were deficient in the active ingredient; and 4 samples of proprietary drugs which were not up to the professed standard under which they were sold.

The police departments submitted 1,970 samples of liquor for examination, 1,942 of which were above 0.5% in alcohol. The police departments also submitted 22 samples of alleged poisons for examination, of which 11 were morphine, 1 corrosive sublimate, 1 strychnine, 4 cocaine, 1 tincture of iodine, 1 opium, and 3 were examined for poison with negative results.

There were 11 samples of coal examined, 9 samples conforming to the law, and 2 samples contained an unreasonable amount of impurities.

There were 95 hearings held pertaining to violations of the Food and Drug Laws.

There were 114 convictions for violations of the law, $2,035 in fines being imposed.

Peter Alexander, Angelos Arapos, Charles Marteris, and Martha Lunch, all of Worcester; Herbert J. Blanchard of Baldwinsville; James Mullins and George Chigos of Springfield; Harold Dodge of Beverly; John C. Elliott of Ashby; John Mendoza of Freetown; George H. Murray of Norfolk Downs; John Goulima, John E. King and Chester M. Zenga of Cambridge; Charles Kokkales of Newburyport; Joseph A. Vigneault of Leominster; Crawford Dearth of Ashland; and Brouislox Sieil of Holyoke, were all convicted for violations of the milk laws. Angelos Arapos and Charles Marteris, both of Worcester; Harold Dodge of Beverly; and John Mendoza of Freetown, all appealed their cases.

Cristi Connos of Chicopee; James G. Couchiaftis and Waldorf System, Incorporated, of Springfield; and Thomas J. Healey of Lowell, were all convicted for selling cream below the legal standard.

Rufus S. Brown of Salisbury; Arthur E. Dorr & Company, Incorporated, of Norfolk Downs; Harry R. Orriss, Alphonse Vierra, and Anthony White, all of Somerville; Harry W. Titus of Wollaston; Angelo Rizzo, Stephen Sperry, 2 cases, Louis Nichols, and James Pepe, all of Lawrence; Aaron Kelly of West Dennis; Robert W. Robbins and Joseph F. Baxter of Chatham; Wigler Bielsky, Harry Gillis, Bernard Stuart, Phillip Epstein, Nathan M. Alpert, 2 cases, Morris Mairenberg, and Benjamin Wiesman, all of Boston; Daniel Vigghiany, Alfred Davidson, Cyrus Kronick, and Frank Shaw, all of North Adams; William Klein and Dennis J. Drislane of Lynn; John Bourgault of Winchendon; E. E. Gray Company of Framingham; Louis Battye of Lowell; and Ovila Beauchamp, 2 cases, and Max Jacobson of Holyoke, were all convicted for violations of the food laws. Aaron Kelly of West Dennis appealed his case.

Joseph John Abounader, Michael H. Goodreau, Mihil Hajjar, Joseph M. Levickas, Andrew Melnicki, Charles Molcheau, John Benbevengo, William Corey, and Dominico Patturnito, all of Lawrence; John Bourgault, Edward Lemire, John

Ready, and Alesandro Travaglini, all of Winchendon; Everett C. Cook and Patrick H. Kirby of Danvers; Morris G. Cutler, Sylvian Thomas, and Reuben L. Winter, all of Shirley; Samuel Abramson and Ralph Gventer of Malden; George Assaly of Medford; Philias Audette, George Halstead, Aleck Mazakowska, Abram Novick, Stephen Savicki, Paul Kroll, and Wallace O. Taraski, all of Lowell; Charles Bologna, Rinaldo Fantini, Michael Karos, Alexander Keucevitch, Isadore Klein, Benjamin Pankevich, John Provchard, and Nicholas Tucoo, all of Haverhill; James Tolios, 2 cases, and Daniel Hart of Peabody; Benjamin Kirzmir of Everett; Joseph Atter, Edward Casey, and Alpin Sarkka, all of Gardner; Osher Wein of Newburyport; Dominic Boschetti and Ernest Duby of North Adams; Joseph Lapire and Ralph Paglia of Leominster; Harry Miller, Finnis S. Slauenwhite, and Abraham Sall, all of Lynn; and George Nicholopoulous of Salem, were all convicted for violations of the cold storage laws. Alpin Sarkka of Gardner appealed his case.

Frank C. Rising of West Springfield, and Andrew Scibelli of Agawam, were convicted for violation of the slaughtering laws.

Willard J. Boston of Malden was convicted for violation of the coal law. The analysis was made by this department, the sample was collected and the case prosecuted by the Sealer of Weights and Measures of Boston.

Samuel Rautz of Beverly was convicted for violation of the bakery law. He appealed his case.

Charles Goldman of Lowell was convicted for false advertising. He appealed his case.

Raymond F. Clemens of North Adams was convicted for violation of the drug laws.

In accordance with Section 25, Chapter 111, of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers:

Dried fruits which contained sulphur dioxide not properly labeled were obtained as follows:

One sample each from Cloverdale Company of Cambridge; The Great Atlantic & Pacific Tea Company of Gardner; Max Burman of Malden; and The Ginter Company of Ayer.

Hamburg steak which contained a compound of sulphur dioxide not properly labeled was obtained as follows:

One sample each, from Supreme Public Market and Nathan M. Alpert, both of Boston; Berkshire Market, Ralph Battista, William Cramer and People's Cash Market, all of North Adams; William Klein of Lynn; Isadore Oxman of Springfield; People's Market of Fitchburg; and Nathan Cohan of New Bedford.

Sausage which contained a compound of sulphur dioxide not properly labeled was obtained as follows:

Two samples each, from Benjamin Wiesman of Boston, and Starz Sausage Company of Chicopee; and 1 sample each from Morris Mauenberg and Nathan M. Alpert, both of Boston.

Sausage which contained coloring matter was obtained as follows:

One sample each from Albany Packing Company of Albany, New York; and Allison's Delicatessen of Lynn.

There were three confiscations consisting of 1,850 pounds of decomposed smelts, 45 pounds of dried-out deer meat, and 11 gallons of sour oysters.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of December, 1925: 302,250 dozens of case eggs, 234,431 pounds of broken out eggs, 581,532 pounds of butter, 2,595,679 pounds of poultry, 3,185,432 pounds of fresh meat and fresh meat products, and 2,080,410 pounds of fresh food fish.

There was on hand January 1, 1926: 3,436,440 dozens of case eggs, 1,895,683 pounds of broken out eggs, 8,356,954 pounds of butter, 5,704,680 pounds of poultry, 5,021,547 pounds of fresh meat and fresh meat products, and 10,042,247 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of January, 1926: 336,660 dozens of case eggs, 230,189 pounds of broken out eggs, 419,103 pounds of butter, 1,517,536 pounds of poultry, 5,091,555½ pounds of fresh meat and fresh meat products, and 1,661,354 pounds of fresh food fish.

There was on hand February 1, 1926: 1,507,080 dozens of case eggs, 1,532,840 pounds of broken out eggs, 5,299,580 pounds of butter, 5,972,909 pounds of poultry, 7,789,272 pounds of fresh meat and fresh meat products, and 7,125,388 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of February, 1926: 153,720 dozens of case eggs, 154,599 pounds of broken out eggs; 694,899 pounds of butter, 805,027 pounds of poultry, 3,967,597 pounds of fresh meat and fresh meat products, and 1,883,836 pounds of fresh food fish.

There was on hand March 1, 1926: 118,020 dozens of case eggs, 707,580 pounds of broken out eggs, 4,135.335 pounds of butter, 5,031,848 pounds of poultry, 9,608,363 pounds of fresh meat and fresh meat products, and 4,242,171 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

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Division of Hygiene	Director, Merrill E. Champion, M.D.
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The Eastern District	George T. O'Donnell, M.D., Boston.
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Dental Hygiene

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

GEORGE H. BIGELOW, M.D., COMMISSIONER

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THE DEVELOPMENT OF DENTAL HYGIENE IN MASSACHUSETTS.

By George H. Bigelow, M.D., Commissioner of Public Health.

THIS seems to be the era of multiple hygienes. With the development of health education and the emphasis on the health examination we hear of hygiene of the mind, the skin, the hair, the teeth, the bowels, the feet, posture and so on. Also we are seldom allowed to forget social hygiene or industrial hygiene. It is all very hygienic and confusing and we hardly know where to begin, or, what may be worse, where to stop. There is much in all of this that is sound and much that is unmitigated bunk.

Some ten or more years ago the dental nurse was legalized in Massachusetts after much the same labor pains that attended the advent of the medical nurse something over a generation ago. She was to aid the dentist in his office and do such relatively simple work as cleaning. But many of her activities are confused with those of the dental hygienist just as the work of the public health nurse and the bedside nurse are confused. In each group the point of view is enormously divergent since one deals primarily with the well and the other with the diseased.

Official dental hygiene in Massachusetts began in 1914 with a statute permitting towns to spend money on dental clinics through the local boards of health. To initiate any project by legislation is likely to lead to misunderstanding and disaster whether it be the return of the population to the farms or the descent or assent of man. Dental hygiene was, unfortunately, no exception.

This work was actually begun through clinics maintained locally by private funds and in many instances was later taken over by municipalities. This is another example, as in tuberculosis and public health nursing, where private resources were used during the experimental period. There will always be such a field for private initiative in health work. The latest developments are embodied in the new dental policy which is outlined elsewhere. Dental hygiene was adopted by the Department of Public Health on the advice of the Massachusetts Dental Hygiene Council and again demonstrates the expert advice on health matters so readily available in this State.

The Department of Public Health began its work in 1919 by promoting educational work in dental hygiene. It had the valuable assistance of Dr. Edwin N. Kent, long associated with the Massachusetts Dental Hygiene Society, who gave of his time and energy without salary. The following year a full-time dental hygienist was appointed to advise with communities wishing to begin work of this kind. Just this year we have required for the position of Assistant in Dental Hygiene in the Department, in addition to a certificate in dental hygiene, a training in nutrition and public health. With the increasing sums appropriated annually by municipalities for this work as concrete evidence of growing appreciation of the value of dental hygiene, sound advice in the development of dental hygiene work is increasingly imperative.

THE NEW DENTAL HYGIENE POLICY.

By Merrill Champion, M.D., Director, Division of Hygiene, State Department of Public Health.

AS our knowledge of the various aspects of public health increases we see with growing clearness the need of changes in policy or, in many cases, the need of a primary declaration of policy. In no field is this more evident than in dental hygiene.

Dental hygiene started out with a rush. Everyone had a hole in his tooth and everyone was glad to get it filled at municipal expense. Almost anything that was done to the mouth was considered preventive medicine. If one adds to this the fact that about every known ill was ascribed to the teeth one can readily see that the stage was all set for a tremendous swing of the pendulum in the direction of indiscriminative dentistry. And the pendulum has swung. Now it is the job of those interested in sound hygienic principles to see where a safe and sane stopping place can be found which will be midway between the old and the new extremes.

There are three sources from which the public may get its dental information and service. The first is the practising dentist and the dental society. The second is some private public health organization —the Visiting Nurse Association, for example. The third is the municipality or the state.

The first of the agencies, namely, the practising dentist and the dental society, is the simplest to discuss. One need have no reservations in dealing with their dental hygiene activities. All dentistry is, of course, their province, preventive as well as reparative. The nearer we can approach the ideal of having them handle the whole of the problem the better. But, just as it will be a long time before every physician will be a health officer, so it will take time to convince the majority of dentists that their great function should be prevention rather than cure.

Turning now to the private public health agency, the matter is not so simple. The difficulty lies not so much with their educational activities as with their excursions into the field of reparative dentistry and with their financial relationships. Private charitable organizations cannot wisely offer free service of any kind to people able to pay for it. If, however, they charge the full cost of the service they render to all who can pay for it, and part cost to those who can pay only in part, they may, temporarily at least, be the means of meeting a great need.

Lastly, we come to the public agency. Here our reservations have to be many. The most urgent lack at the present moment is some intelligent thought applied to the principles which should govern boards of health or school committees in rendering service of a medical nature at public expense. Any private business would go to the wall that used so little forethought and common sense as are ordinarily shown by public agencies in these matters. Some boards of health charge for their dental services, some do not. Some charge ten, fifteen or perhaps twenty-five cents for service that costs a dollar or more. It is hard to follow the reasoning on which such procedure is based. The inference is quite possible that there is no reasoning whatever at the basis of the procedure. One can understand no charge at all and one can understand a charge which covers cost. But it is hard to see why the board of health should compete with the overseers of the poor in furnishing medical care to the poor and it is harder still to see why they should maintain a modified poor relief service for those able to pay.

It is far wiser for them to undertake only such service as may properly be given free to all.

It is upon such considerations as these that the recommendations of the Massachusetts Department of Public Health, embodied in its new dental hygiene policy, are founded. They are based upon the conviction that it is the part of wisdom for boards of health to confine their dental activities to service which can be offered free to all citizens. This, in the opinion of the Department, means educational work only. It is further believed that the necessary reparative dentistry outside that given by private dentists should be offered by hospital dispensaries or other private clinics and the cost of service met in every instance possible by those availing themselves of the service. No mention is made of dental clinics conducted by school departments. There seems to be no valid reason for schools giving medical treatment. Furthermore, in Massachusetts there is no legal authorization for such service.

Up to this point we have been discussing the governmental aspects of the policy. Part of the recommendations, however, are based on other considerations, which have to do with the technical side of the question. Here the Department is relying largely on the professional advice of the Massachusetts Dental Hygiene Council. We are convinced of the correctness of the view that nutrition is the key to efficient dental hygiene and that the filling of pits and fissures will render later extensive reparative work largely if not entirely unnecessary. This being the case, there is no alternative to thinking that most of the dentistry done for the school child represents misdirected effort. If the same amount of money were expended on educational work for the prospective mother and the young child, the results would speak for themselves. This means shifting the emphasis from the school to the pre-school child.

The whole situation then may be summed up in this fashion:

1. The time has come for a new evaluation of dental hygiene.
2. The newer scientific information points to the overwhelming importance of nutrition in relation to dental hygiene.
3. This leads to the conviction that the emphasis now being laid upon work for the school child should be shifted to a considerable degree to the pre-school child and the prospective mother.
4. Straight thinking demands that a clear-cut distinction be drawn between educational work and reparative work, especially as regards the activities of agencies expending municipal funds.
5. Reparative work belongs with the private dentist and with hospital or other privately conducted dispensaries. Such work should be free or partly free, only to the poor.

If the reader will now glance over the new dental policy of the Massachusetts Department of Public Health which is appended below, the governmental and scientific aspects will be clear and if he agrees with the reasoning involved he will see that the alternatives to such a policy as this are:

(a) A continuance of the present highly wasteful method of trying to repair teeth without giving much thought to ways of rendering this unnecessary.

(b) Getting deeper and deeper into the mire of municipal expenditure for the surgical treatment of the mouths of people able to pay for this service.

Dental Policy.

"A widespread need has developed for a consistent and definite policy regarding dental hygiene. This need has been felt by both official and unofficial agencies, by dentists as well as by health officers. The policy outlined below represents the joint decision of the Massachusetts Department of Public Health and the Massachusetts Dental Hygiene Council in this matter. By a vote of the Massachusetts Public Health Council it is the dental policy of the Massachusetts Department of Public Health.

A. Recommendations Suitable for Both Public and Private Agencies.

1. *Educational Policy*

The Department will supply communities with information concerning the following subjects:

- (a) The advantage of beginning dental treatment and nutritional care early, especially of the primary teeth at 2-3 years of age, and the first permanent molar at 6 years of age.
- (b) The relationship of Oral Health to General Health—benefits of a clean mouth.
- (c) The relation of nutrition to teeth development.
- (d) The importance of dental and nutritional care during pregnancy, infancy and early childhood.
- (e) The evidence of desirability of clinic work, and the desirability of employing a Dental Hygienist.

(Facts will be furnished by the Dental Hygiene Council)

B. Recommendations for Public Agencies (Boards of Health).

1. *For Boards of Health Now Conducting Dental Clinics Which Include Dentists.*

- (a) The staff should consist of dentists and hygienists. (Number depends on size of group served). The dentist to do fillings and extractions. The dental hygienist to teach dental hygiene, clean, examine for fissures and cavities and follow up in the school. (Follow up in homes to be referred to the public health nurse.)
- (b) Operating policy defined.

  The recommendations of the Department as to policy of dental treatment are identical with that carried out at Forsyth Dental Infirmary for Children.

  1. Concentrate on pre-school children (age 2-4 years) and follow up through the grades, beginning on the lowest until the problem is under control for all grades.
  2. Fill all fissures and pits immediately after eruption. Do no "root canal treatment" or conservative pulp treatment.
  3. Extract all teeth not amenable to "simple fillings." (Fill only such cavities as can be done without danger of pulp involvement.)
  4. Do only emergency work for children over 7 years of age.
  5. Keep records of all teeth extracted that have been previously filled—in order to check up on work of clinic.
  6. Discharge children at 13 years of age or after eruption of second molars.
  7. Stress the importance of periodic inspection. (At least once a year—oftener if possible if the child is young.)
  8. Carry on clinic only so long as is necessary to introduce and make more attractive and forceful the educational program, cleaning, filling of fissures and pits, nutrition and dental care for prenatal period and early childhood.

9. Extend clinic service to prenatal cases.

(c) No charge to be made at Board of Health Clinics.

2. *For Boards of Health Contemplating Dental Work.*

(a) Information as to the Visiting and Instructive Dental Hygiene Clinic. (Directed by the Massachusetts Dental Hygiene Council.)

(b) Information as to work of dental hygienists.

(c) Dental treatment clinics under Boards of Health are not recommended.

(d) Cleaning of teeth to be done largely for the benefit of "contact" with the child to create interest in good health habits.

(e) Stress the importance of periodic inspection (once a year).

(f) Reference to private dentists or dispensary—local or traveling—for early care and all reparative work.

C. Recommendations for Private Agencies.

(Such as Visiting Nursing Associations, Red Cross, and Dispensaries.)

(a) That the community make use of the Visiting and Instructive Dental Hygiene Clinic. (Massachusetts Dental Hygiene Council.)

or that it

Establish a local clinic with a

Staff—consisting of dentist and hygienist. (Number dependent on size of group served.)

The dentist to do fillings and extractions.

The dental hygienist to teach dental hygiene, clean, examine for fissures and cavities and follow up in the schools. (Follow up in homes to be referred to the public health nurse.)

(b) Operating Policy Defined.

1. Concentrate on pre-school children (2-4 years) and follow up through the grades, beginning on the lowest until the problem is under control for all grades.
2. Fill all fissures and pits immediately after eruption. Do no "root canal treatment" or conservative pulp treatment.
3. Extract all teeth not amenable to "simple" fillings. (Fill only such cavities as can be done without danger of pulp involvement.)
4. Do only emergency work for children over 7 years of age.
5. Keep records of all teeth extracted that have been previously filled—in order to check up on work of clinic.
6. Discharge children at 13 years of age or after eruption of second molars.
7. Stress the importance of periodic inspection. (At least once a year—oftener if possible if the child is young.)
8. Extend clinic service to prenatal cases.

(c) Obtain from each person able to pay, at least the full cost of the service. Those unable to pay full cost to be charged what they can pay. Those unable to pay anything to receive free treatment.

The Massachusetts Department of Public Health offers to communities:

1. Consulting Service of Dental Hygienist.
2. Dental Educational Material:
    - (a) Printed Material.
    - (b) Posters.
    - (c) Slides.
    - (d) Exhibits.
    - (e) Moving Pictures.
3. Lecture service to selected groups.
4. Assistance in State well-child conferences, stressing nutritional side of dental hygiene and importance of early dental care.
5. List of dentists approved by Dental Hygiene Council.
6. Details and cost of Dental Clinic equipment that have been compiled by the Dental Hygiene Council."

(Endorsed by the Massachusetts Dental Hygiene Council.)

THE DENTAL HEALTH PROBLEM AND THE FORSYTH SOLUTION, CHILDREN'S DENTISTRY

The succeeding twelve articles represent a correlated symposium presented by the Dental Hygiene Council of Massachusetts at the Annual Convention of the Massachusetts Dental Society, May 6, 1926.

THE COMING ERA OF PREVENTION IN DENTAL HISTORY.

BY J. WILLIAM O'CONNELL, D.M.D.

A SURVEY of the history of dentistry, from the earliest times down to the present, leads to the inevitable conclusion that while its technical side has always received ample consideration, the health service aspect has been neglected to a most conspicuous degree. We are furnished with unimpeachable evidence that while dental art was practiced from the most remote times and amongst practically all peoples it remained, nevertheless, always in an embryonic condition until a comparatively recent date.

Eighty-seven years ago, a few practitioners of dentistry, who certainly were men of unusual vision, saw clearly that health service concerning the teeth deserved special educational attention. They were, however, unable to "sell" their idea to the faculty of medicine they consulted, and when they suggested that instruction in dentistry be associated with that of medicine, were met with a more or less curt refusal. Finding that dentistry would not be welcome in the fellowship of medicine, they hewed straight to the line by establishing an independent college of dentistry. The incorporation of this college, the first in all history, gave birth to dentistry as a coordinate branch of health service and thenceforth dentistry took its place in the group of learned professions.

From that time onwards, although it has been almost imperceptible at certain periods, the evolution of a real scientific attitude has been gradually developing, until now its logical conclusion is attained in the practice of prevention.

The older views, based on the mechanical conception of diseases of the mouth, are gradually being discarded by the profession, and the newer, or biologic views, prevail.

We are now directing our attention toward the prevention of dental disease, realizing only too well that any attempt to cure that condition after it has become established, is a hopelessly futile proposition. It is to the advancement of this idea, this plan of prevention, that the Massachusetts Hygiene Council is directing its most earnest effort.

THE HISTORY OF THE DENTAL HYGIENE COUNCIL OF MASSACHUSETTS.

BY ROBERT S. CATHERON, D.M.D.

IN December 1907 at the suggestion of a medical man, Dr. William R. Woodbury, representatives of some of the local dental societies met at Dr. William H. Potter's office to organize the Massachusetts Dental Hygiene Council.

Its purpose was in the words of its constitution "to educate the public in the necessity of keeping the teeth and mouth in a healthy condition, to teach the doctrine that dental decay can to a large extent be prevented, to promote dental hygiene in schools, to assist in establishing dental clinics for the poor, to aid in the control of tuberculosis and other infectious diseases."

The principal avenues by which the Council has attempted to reach the public have been lectures, the press and pamphlets, exhibits and clinics. The following pamphlets have been prepared and distributed:

Care and Use of the Teeth.
Dental Hygiene Council of Massachusetts; Its purposes, Its Work, Its Needs.
The People's Disease. How to Prevent It.
Dental Caries; A Factor in Disease.
The Teeth of Public School Children; How Can They Be Improved?
Oral and Dental Conditions in Tuberculosis.
How to Care for the Mouth and Teeth.
Descriptive and Financial Statement of the First Year's Work.
Dental Hygiene Wall Chart.

These pamphlets were brief, written in terms that were intelligible to all and were sold at cost. Thousands were sent out each year to all parts of America.

The pages of the press were freely opened to the Council. Generous accounts of the public meetings were published and dental hygiene information was accepted as of news interest.

Lecture Service.

The Council has from the beginning considered the lecture one of the best methods of reaching the public and has always stood ready to provide speakers. So great has been the demand that in addition to the members of the Council, all of whom have done their bit, many men from the outside have been pressed into service.

The most substantial single effort along this line was the State Conference held in 1910 in which the Council, the South End House, the Twentieth Century Club, The Monday Evening Club and various dental societies took part.

Seven meetings were held on successive days and every phase of Oral Hygiene was discussed by men of national prominence among them Professor Fisher of Yale, Horace Fletcher, President Gasson of Boston College, Professor Sedgwick of Technology and President Eliot of Harvard, as representative a group of men as could be gathered for a common purpose.

To meet the growing demand for speakers a standard lecture outline was prepared, later slides were added and finally a complete lecture was compiled. In fact as was said by Dr. Edwin Kent, who was largely responsible for its production, "everything was furnished but the speaking voice." It was translated into half a dozen languages and has been presented before at least half a million people.

A logical development of this standard lecture is the moving picture film. Two have been prepared by Dr. Kent and undoubtedly will reach an enormous number of people.

Advisory Service.

The Council has acted in an advisory capacity to the State and local boards of health, the Red Cross and to groups desiring to establish clinics. It has in the early part of its existence maintained a traveling exhibit of wall charts and plaster and wax models.

The Council has given concrete expression of its beliefs in the public clinics we find in connection with schools, charitable organizations, hospitals and factories. It has been directly responsible for the creation and operation of many clinics and has helped in creating the interest that has made many others possible.

It has evolved clinic instrument lists, a minimum where funds were limited and a maximum where they were abundant.

The Council has demonstrated the practicability of a rural dental clinic. It has underwritten and promoted a hygienists' school clinic for which there has been a continuous demand.

It has recognized the importance of diet in oral conditions and has provided the State Society with material for a pamphlet for distribution amongst its members.

From the beginning it has stressed prevention rather than repair.

The Council has grown with the oral hygiene movement. From a simple beginning it has developed into an organization in which every phase of dentistry in the State is represented. Its membership includes the State Society, the State Board of Dental Examiners, Harvard and Tufts Dental Schools, their alumni bodies, the Harvard Odontological Society, the American Academy of Dental Science, the Guild of Saint Apolonia, and the Forsyth Infirmary.

The Council is not content to rest on its record of past accomplishments but is making a sincere effort to cope with our greater dental problems. Its success will depend on the support received from the dentists throughout the State.

THE ARGUMENT FOR CHILDREN'S DENTISTRY.

BY WILLIAM RICE, D.M.D., DEAN, TUFTS DENTAL SCHOOL.

IN the report of the Carnegie Foundation for the Advancement of Teaching for 1924 in the chapter entitled "The Status of Dental Education" there appears the following statement: "Dentistry properly is a form of health service that should be made equal to that of an oral specialty of medicine."

If this challenge is to be answered, the mind of the profession must be directed into new channels, and its interest centered upon the problem of the prevention of oral disease and its limitation. This can only be accomplished by endeavoring to reinforce the natural defenses of the body, and by giving authoritative advice with respect to a mode of life that will be in harmony with the requirements of the laws of hygiene. The teeth and the oral structures must be regarded as integral parts of the body, which suffer from baneful influences affecting the entire system, and which respond to favorable conditions. If this premise is accepted, it is logical to state that intelligent supervision of the entire developmental period offers the most favorable opportunity for effective service. It is obvious that such service presupposes an adequate knowledge on the part of the practitioner of dentistry of the fundamentals in medicine, and a proper grasp of the laws of hygiene. Great stress has been laid of late upon the subject of diet, and our literature has teemed with matter of greater or lesser scientific value, relating to this subject. It should be realized, however, that the question of diet is not the only consideration: the whole problem of nutrition is involved. Howe says there are at least two things to be considered in bodily metabolism:—1st—an ample supply of the materials out of which the various tissues are to be built; 2nd—the ability of the organism to properly utilize these materials. Directly connected with the hygiene of nutrition may be added the questions of exercise, posture, fatigue, rest, fresh air, sunlight, bathing and the mental state.

As the development period offers the most favorable opportunity for effective service, children's dentistry should take its rightful place of pre-eminence in dental practice. The day of the periodic health examination has arrived, and the public is rapidly responding to the unanswerable logic upon which it is based. The inclusion of a thorough oral examination by dentists trained for such service should become a part of this health routine. If these periodic examinations are begun in infancy, preventive dentistry may easily become an actuality. The study of the developmental fissures, grooves, and pits in both the deciduous and permanent teeth affords a field pregnant with possibilities of successful achievement. The work already accomplished by Dr. Hyatt in this direction is full of significance. In his report he states that in an examination of 2,000 high school girls he found in the first permanent molars that carious cavities in the occlusal surfaces are more than double the number of all carious cavities in the other surfaces added together. The predominance of cavities on the occlusal surface amply justifies the treatment and eradication of developmental pits and fissures and gives much promise of a radical reduction in the incidence of dental caries in this location. Hyatt further states that 47% of first molars, 17% of second molars, and 14% of second bicuspids are lost before adult life. Of the remaining first and second molars 87% have occlusal cavities. The time-worn argument that the public will not pay adequately for children's dentistry is in no way justified, and the time has arrived when the tradition of free dental examinations should be overcome. The ability of the dentists to impart authoritative advice is a professional qualification worthy of remuneration, and examinations for the purpose of observing the progress of development of the teeth and jaws, and the early detection of defects is an important part of the periodic health examination. From the economic standpoint periodic examinations will appeal to parents who are already overburdened with the many demands of modern life. What parent, having the welfare of his children at heart, would not be glad to assume a reasonable annual expense for the practical certainty of prevention of dental disease?

Summary.

The facts in the case may be summarized as follows:

1. As dentistry is a branch of health service, the prevention and limitation of oral disease is its chief function.

2. As the development of the teeth is synchronous with the development of the jaws, the upper respiratory tract, and the accessory sinuses, the equilibrium of the living organism is in a measure dependent on the harmonious growth of all these parts.

3. As the development of the teeth begins in early fetal life, knowledge of the hygiene of the prenatal period is necessary in the practice of dentistry.

4. As dental caries is most active in early life, frequent periodic examinations of the mouths of children from two to fourteen years of age is essential for effective treatment.

5. As the public will be benefited both physically and economically by this form of health service, it will respond quickly to an intelligent presentation of facts.

6. The question of remuneration of the dentist should be based upon the relative value of the service rendered, and as this service demands the application of high professional knowledge and the possession of keen appreciation of child psychology, the compensation should be proportionately greater than for other forms of dental service.

7. It is the moral duty of the general practitioner of dentistry to devote his utmost energies to the furtherance of this branch of pediatrics.

THE PLACE OF CHILDREN'S DENTISTRY IN THE SCHOOL CURRICULUM.

By Leroy M. S. Miner, M.D., D.M.D., Dean, Harvard Dental School.

THE development of dentistry, since its beginning, has been along mechanical and artistic lines. Repair work has been the chief function of the dentist, the filling of teeth and the making of plates being the chief operations.

The progress of dentistry has been in the refinement of mechanical technique almost entirely. There has been no progress in decreasing the amount of dental caries or of dental disease in general. In fact, the very refinements in the mechanics of dentistry have perhaps increased pathology in the mouth.

The reason for the extreme emphasis on mechanics and arts is probably due in large part to the training received in the dental school. In our dental curriculum operative and prosthetic dentistry are the chief major courses. The dental student's chief ambition has been to put in a good gold filling or to make a good bridge or a good plate. The medical relationships in dental education have been almost entirely neglected, and while there has been some talk in our schools about preventive dentistry, there has been no training which would make the dental student feel that this department was of much importance.

Consequently, if a program for prevention is to succeed in the dental profession, there must be a change of viewpoint in dental education and the whole subject of preventive dentistry must be made a very prominent part of the dental school curriculum. With health service as the chief ambition of the dentist, the prevention of dental disease, and more particularly dental caries, as a means of promoting physical well-being, will be constantly uppermost in the minds of the dental student and the dental practitioner.

It is encouraging to learn that some of the dental schools have already made a start in this direction, and the result of this change in training should be the creating of a group of young practitioners who will have the ambition to play a vital part in the progress of dentistry toward that goal, the elimination of dental decay.

With prevention instead of repair occupying a prominent place in our institutions for dental education, there will be a more sympathetic understanding between the medical and dental schools. Preventive medicine and preventive dentistry have many things in common, and with the dental schools joining with the medical schools in emphasizing prevention, real progress in the control of dental disease should result.

It is important, therefore, and necessary, in this campaign for children's dentistry and the possibilities it offers along lines of prevention, to have our dental educators thoroughly see the need of sound training of the dental students in this field, which offers so much hope for the future.

CHILDREN'S DENTISTRY AS PRACTICED IN INSTITUTIONS AND PUBLIC SCHOOL CLINICS.

By Harold DeWitt Cross, D.M.D., Director,
Forsyth Dental Infirmary.

DURING the early months of the operation of the Forsyth Clinics, children came and were brought at the age which most teachers, nurses, physicians, and even dentists thought was proper and suitable in order to give them the advantage of this wonderful institution. This was dentistry as it was being taught and practiced: patching up the large holes and deep cavities, devitalizing pulps, treating root canals of seriously broken down and decayed first molars, many of which had to be extracted. It was all that could be done under the conditions, and done in this manner required anywhere from twenty-five to thirty visits from the child, even with the forty-five or fifty minute periods which were then given for each visit, while the average at the present is about two and one-half visits per child for complete attention, in thirty minute periods.

With this large number of visits needed for each child, to work downwards from the age of fifteen to reach the six year old child was an impossible task for any institution to undertake, because from actual figures it was found that a few over one thousand full time dentists would be needed to accomplish this result for the school children of Boston. The same thing has, however, been accomplished with only an average of something like sixteen Internes.

Dental caries has not been controlled by the type of dentistry which has been done up to quite recent times and its prevalence has been, if anything, increasing, as is shown by surveys in different parts of the country. In private practice and in clinics dentists have attempted to control this inroad of caries by working on it after it has been well established, and even after it has reached a serious stage. Practically no situation has ever been controlled by working at this end of the problem, as is well shown by the work done in the control of tuberculosis, of heart disease and of cancer.

The Need For a Better Service.

Within a very few months after the opening of the Forsyth Infirmary, it was found that it would be an impossibility to ever do anything more than attempt to give care to a small number of children if the policy which was then prevalent should be followed, of operating on these teeth after they were broken down. And the question very naturally arose, how could a better service be given?

Improved technique in the manner of inserting fillings, or in the treatment of root canals was suggested and tried out to a very limited extent, but sufficiently to demonstrate its impracticability, and the impossibility of accomplishing satisfactory results, so there seemed to be only one way. That was so simple that there was a little hesitation in regard to adopting it. The method consisted merely in getting the child to the clinic before complications of any seriousness had occurred in his teeth.

This simple procedure has not proved nearly as simple as it appears to be, because everyone concerned with the child's welfare, with very few exceptions, has taken the ground that it is not necessary for a child to go for treatment until he has a toothache, or at least until a cavity is visible, and everyone's attention was naturally focussed upon the older children whose teeth were in a noticeably serious condition and, consequently were supposed to be in greater need of care, especially as this was the type of care which the public had been educated to expect to receive from the hands of the dentist, and many of them, even including dentists believed that it was the only way in which dentistry could be made to be of any benefit.

The success of the plan of getting children of a sufficiently young age has been due, in a very great measure, to the splendid cooperation of the school nurses in convincing the parents and the teachers of the desirability of this type of treatment, and the advantage of giving it sufficiently early. This has been further emphasized by the school authorities arranging to bring to the clinic all the children of the first grade in regular school routine. Children not beginning in this way are obliged to come as individuals, and independently, during school vacations only.

Results of Early Attention to the Teeth.

The results following this plan of early attention to the children's teeth given before there are any serious complications, has proved to be of tremendous advantage to the child. So much so, that it is now possible to speak of "end-results" for children 16-18 years of age, in terms of good, vital teeth which have nothing more serious than small "pit and fissure" fillings, and under ordinary conditions ought to be good for at least forty years, with the possible exception of an occasional renewal of a filling due to recurrent decay.

In a backward check-up, it was found that 82% of the children in the 8th and 9th grades who received treatment in the first, second or third grades have four six-year molars in good condition, while 11% have three good six-year molars. Those six-year molars which are missing are from those who either were a little early in erupting these teeth or were the last to receive treatment at the end of the third grade and consequently were obliged to lose their first molars at that time.

If it is possible to conserve 93% of six-year molars in cases in which only a portion received sufficiently early and systematic care, we certainly can expect to raise the proportion very easily, could we treat every child not later than six years of age.

End results in terms of good teeth, i.e., all teeth present with vital pulps and with only small fillings, has not been the usual attainment of dentistry, but that this condition may be obtained in a very definite manner, and that it is of easy accomplishment, is the natural deduction to be made from the results of the last few years work in the Forsyth clinics.

Proportion of First Molars Extracted.

Another phase of this same problem is illustrated by the reduction of the proportion of first molars extracted before and after the adoption of the plan of early care.

In 1915, one six-year molar to every three teeth was extracted; this was gradually reduced by early attention to one in five, in 1918. In 1924 only one six-year molar in each two hundred teeth was extracted in a group which had consistently received sufficiently early attention.

During the first three years, at least 50% of the six year molars were given root canal treatment, while since then, none had been treated in this way. This means that the only six year molars which require extraction now, are those in the mouths of children who did not receive early age care, or where existing pits and fissures were not adequately treated. Application of silver nitrate does not appear to be a permanent method and is effective for only about fifteen months, and several teeth treated in this manner have developed deep cavities and exposed pulps.

Attention to Pits and Fissures.

This leads us to believe that probably around 90% of the caries which was believed to be unavoidable, and which we have been trying to prevent by tooth brushing, is easily controlled by this plan of early treatment, through cutting out and filling pits and fissures wherever they may occur in any of the teeth, whether primary or secondary, and in the incisors and cuspids as well as bicuspids and molars.

We have available, an exceedingly efficient method, if we will only adopt it and use the necessary educational plans to bring it before the public, because dentists cannot carry out this plan any more than can the clinic, unless the children are brought where they may have it applied to their teeth. We must change our advice and not say that a certain defect or cavity is not large enough to be filled; we must try and get in touch with these children before there is really any existing cavity present, and we should say—"This cavity is 'too large' to be filled, rather than 'too small' ".

Only a very few clinics, so far, have adopted this kind of a plan, but those that have done so are extremely enthusiastic over the success and the results which have been obtained.

A check-up over a period of years was made by the Association for Improving the Conditions of the Poor, in New York City, with very satisfactory and gratifying results in the reduction of cavities appearing in the teeth of children in this group. In the Cleveland Public School Dental Clinics, under the direction of Dr. Harris Wilson, the same policy is in operation, and the success is just the same and just as satisfactory as that being obtained at the Forsyth. It is therefore nothing peculiar to Forsyth Clinics, but it is something which can be adopted and carried into effect in any clinic where it is so desired to do.

Periodic Examinations.

By adopting this early treatment plan it is possible not only to reduce the number of visits in order to put a child's mouth into order, but the total number of visits during his school life can be very materially reduced, inasmuch as it is not necessary to do much filling, except at the periods immediately following the eruption of each pair of teeth. A careful watch and follow-up—cleaning the teeth and examining for new cavities, or for the recurrence of decay around an old filling should, of course, be done at frequent periodic intervals.

It should be unnecessary for every Clinic to go through the process of experimentation and elimination to discover this principle, as it is possible for them to begin with all of this knowledge ready made, and with exact information as how to carry it out.

A "needle sharp" explorer is used to discover the "fissures" and may be likened to the Schick test to determine immunity to diphtheria, as it shows whether or not the tooth is likely to be immune or not to caries, resulting from decay starting in this "fissure"; and the cutting out and filling of this fissure is likened again to the toxin antitoxin administered for the prevention of diphtheria.

The Policy in Private Practice.

The question frequently arises whether or not it is possible to carry out such a policy in private practice. The public and not the dentist is going to answer that question. If it is of such tremendous advantage as it has been shown to be for the child attending the clinic, are not the patients of the private practitioner entitled to just as good service, and will his patients very long be content to do without a service which is putting children through the intermediate school, the high school, and up through college with good teeth which show no prospects or likelihood of having pulp complications, and consequently without the possibility of the systemic troubles which may arise after the pulp has become involved?

There are, to be sure, some differences between the private practice and the clinic, and one phase of this situation was largely responsible for the development, at Forsyth, of this policy of universal early treatment. The responsibility that is necessarily a part of a dental public health policy is ordinarily little felt by the private practitioner who is, primarily at least, interested in the few who constitute his patients. The clinics, on the other hand, naturally assume this responsibility of attempting to accomplish results of a definite character for as large a number of people as possible, in a given community or group.

It was this feeling of responsibility for accomplishing something definite in the improvement of the tooth conditions of the school children of Boston that incited the Forsyth Policy, which institution was organized and put in operation for the purpose of doing the greatest good to the largest number of these children.

This is a Public Health or Preventive Policy, which is broad and constructive in its desire to accomplish, and it is to this point of view that Preventive Dentistry owes much of the incentive of the last few years.

The private practitioner has customarily dealt more exclusively with established conditions of disease, while the clinic aims either to prevent or to give early attention to the original defect from which practically all tooth diseases in adults, and the systemic conditions resulting therefrom, arise.

There should not be this difference, and whatever policy is proved to be successful in clinic work should be adopted in private practice as rapidly as education and public opinion is sufficiently advanced to make it possible. In order to hasten this opportunity, dentists should do all in their power to influence individual patients and to educate the public along the lines known to be efficient. It may be, and probably is true that an individual dentist cannot as readily and properly change his policy as can be done by a clinic, yet he can together with the others of the profession, mould the ideas which the public expect to be given, both in the theory and practice of dentistry.

CHILDREN'S DENTISTRY IN PRIVATE PRACTICE.

By Edwin N. Kent, D.M.D.

ADVANCING dental science has reached another mile post. She has stopped to deliver a message that should sink to the inner consciousness of every practicing dentist. The health, comfort and happiness of countless thousands of children and adults demand that we shall digest this message with open, receptive minds.

What is the significance of the present facts and figures to us as private practitioners?

At the outset we should realize that we are facing facts and figures and not theories. There have been individual visions of the new order of science in its constructive stages long before it took its present tangible form. Some of these foreseers have told us of the "writing on the wall." But visions are not convincing and we have listened in a state of passive inertia. Today we are not concerned with visions—we are facing the proof of positive results.

No conscientious practitioner can view lightly anything that promises a distinct advance in our preventive procedure. No one could meet the appalling destruction of dental tissues, crippled masticating machines, root infections and serious secondary ailments resulting therefrom that have stared us in the face every working day of our professional lives without feeling that our scientific efficiency, as a whole has, in the past, been very much in question.

It is dodging our responsibilities to try to hide or gloss over the significant facts. Dental science, with all her wonderful items of mechanical and artistic replacement, has, in general, ignominiously failed to solve her problem. And this means you, and it means me, and it means every other representative of our scientific field.

The thinking layman is alive to the trend of things and aware of the discouraging results. The parents of our children have a right to demand of us a more intelligent and comprehensive service than that which comes under a strictly reparative procedure and they are rapidly reaching a full realization of their right to that demand.

We have stressed mouth hygiene for many years and, although we have not had a hundred per cent success in that realm of education, it has been extended far enough to prove that mouth cleanliness alone will not markedly resist the inroads of the disease we are fighting.

The record of results that is now placed before the dental profession and the public is conclusive. It is not the end. Dietary reforms may some day accomplish more than today we can conceive. It is, however, the last word of preventive dental science in this spring of 1926 and, as such, is of mighty importance to every one of us who has the welfare of his patients in view.

Enthusiasm.

The significance of the situation to the private practitioner seems plain. Regardless of moral duty and high ideals, considering the subject coldly, as a matter of professional policy, the question before us is not one of adoption or rejection of the plan in private practice, but "how shall it be adopted?"

It is first necessary to realize that such a reform cannot be put over in a half-hearted way. Those who are convinced to the point of enthusiasm will bring about the most complete and far-reaching effects. Our patients read between the lines whenever we speak and our proposals are accepted or rejected much in response to our frame of mind.

The best of dental service has many times been unappreciated because of the operator's failure to impress on his patient its importance. We take too much for granted in our office educational work. The present scheme will never work out satisfactorily without enthusiasm on the part of the operator and its unmistakable expression to the parents of children under treatment.

Service.

Service, all around scientific service, should be stressed as the main issue. This is a most important consideration.

Dentistry of the better quality involves infinitely more than the average person realizes and he never will realize it except as it is explained and demonstrated by the dentist himself.

Early and Periodic Procedure.

The proposed plan for early and periodic preventive procedure is sound and logical and the results are sure. You may promise more than you have ever before been able to promise with the assurance of fulfillment.

The general principle of stopping the flood at its source appeals to the reason of any sane minded person but you must be able to present a convincing argument as to your ability to bring about its accomplishment.

It does not require a professional understanding to see the significance of the facts and figures that have been presented: they are convincing to us—they will be convincing to the parents of your youthful patrons. Be frank, and tell them of our newly acquired knowledge and what it means in the face of our past discouragements in the field of preventive dentistry, and make them see, as we see, the dawn of a new preventive era.

Parental Cooperation.

But your education must go beyond the convincing argument necessary to the acceptance of the idea. You must have parental cooperation. It must be made clear that the success of the procedure depends upon a concurrence of effort between the dentist and those who are responsible for the home care of the child's mouth, punctual response to the advised appointments for examination and treatment and other influences that are without the realm of the operator.

The most conscientious of mothers, with the best of intentions, will be lax at times unless we pursue a follow-up system that leaves no chance for a lapse of memory. Service without system is more idealistic than practical and a service of this type that demands periodic attention must be backed by efficient organization to produce results.

Adequate Compensation.

There are those among us who may be able to think through all of the foregoing without difficulty and then sight a staggering obstacle—adequate compensation.

The fee question is a large one and one that deserves a more extended consideration than it receives in our special professional connections for the sake of public welfare alone.

One of the biggest impediments in the way of our advancement along many new lines of office procedure, an obstacle that has hampered our progress more or less for many years, is the illogical, inconsistent attitude of the majority of practitioners on the regulation and apportionment of fees.

Dentists have too long and too frequently played the role of tooth fillers and plate makers. The public should realize that dentistry of superior quality offers a broad, comprehensive medical and surgical service in connection with which these items are but incidentals.

The false impression and misconception of the public on this point is due entirely to a fault of the dentists themselves. Again it is a matter of education. No patient can reasonably be expected to follow us through our various advanced changes of method with an intuitive appreciation of all that these changes entail in our commercial relations with them. Here again they need and they deserve instruction.

Our attitude on the fee question with youthful patients, considering the profession as a whole has been based on an unsound foundation. It has been a question of distorted economics. "These teeth will soon be replaced—they are not worth filling" has echoed down through the years to our disgrace.

It is unfortunate that we have needed recent demonstrations to correct our mathematics. The value of the deciduous dentition in this year 1926 cannot be questioned, whatever may have been our views in 1916. From the financial standpoint alone this places upon our shoulders a new responsibility to patients and parents. Parents must be convinced of the economic as well as the physical value of children's dentistry; that the cost of thorough professional service in the early days is a good investment; that the size of the dividend in beneficent influence on the health of the patient is exactly in inverse proportion to the age of the patient and, therefore, the amount of protective service the investment will buy.

The only true indication of the reasonableness or fairness of the dentist's fee is the real value of the service rendered,—not the fancied value, not the display, not even the satisfaction experienced by the patient or parent—the true economic value, and only that, is the measurement of fee that is logical and fair.

The fact that the value of service to children has been belittled by many dental practitioners in the past, has exerted a downward influence on fee standards for this important work. A bill rendered for service on teeth that are condemned as "not worth much as they will soon be gone" must be a modest one indeed to bring a cheerful remittance.

Those practitioners who realize the true value of such service and convey their knowledge to their patients and do the necessary educational work will have little difficulty in collecting proper remuneration for the most important service the dental profession is able to offer.

In any normal transaction all that is asked by the purchaser of goods or service is a hundred cents worth of value for each invested dollar. It is not logical or reasonable to ask a patient or the parent of a patient to spend a dollar in your office if you cannot present evidence that it is a consistent investment. A man who takes the public's money in a dental office or anywhere else without a clear idea of the value he is giving in exchange must expect that sooner or later he will be liable to be a party in an embarrassing controversy. The dentist who knows what he is doing and why; whose knowledge and system of procedure are backed by the latest findings of dental science and research will have little need for argumentative ability to prove his points.

"Be sure you are right; then go ahead" is an aphorism that is old, tried and true. If the general scheme of procedure that has been outlined today is accepted as right; if you believe the statistics that are offered and recognize their significance; if this is the kind of dentistry you would want your own child to receive, then you know what is right. There's nothing left but to go ahead and, if there are obstacles in the way, boldly surmount them.

From my experience and observation the fee difficulty in this particular class of service is very much over-rated. The majority of mothers think more of their children than they do of themselves. A person of ordinary common sense would not trust a Rolls Royce to a Ford repair shop or accept replacements of inferior grade and, whatever may be the contradictory evidence at times, in the final reckoning, the prevailing quotations on child values will always be higher than those on motor cars.

There are difficulties in connection with the rendition of comprehensive dental service to children but I believe that the problem of compensation is one of the least of them.

The Handling of Children.

One difficulty in this special field is undoubtedly paramount. The handling of children of the tender, impressionable age in the dental chair is an art by itself. It is not within my province to discuss this point further than to state that we must meet the needs whatever may be our necessity for special training.

Fortunately the demand has brought a natural development. It has started in the larger centers but it will spread to the smaller communities as rapidly as the broadened view of general practitioners makes the way clear. We are blessed with the advent of the Pedodontist, the specialist in children's dentistry.

Many of us thankfully welcome the relief granted by the exodontic and orthodontic specialists. The periodontist has his place and a rapidly increasing number of our fellows are turning over to him the problems and treatment of the dental investing tissues. The fact that specialties may be over done in medical practice is no argument against the reference of cases to the man of superior knowledge or ability where such action is reasonably indicated.

The dentist who finds himself unable to cope with the peculiar requirements of children's dentistry cannot excusably seek the solution of the problem by the route of neglect. He should be thankful if there is a pedodontist within reach. If such special service is not obtainable he has but two courses open: fit himself to efficiently face the demand or turn the patient over to another general practitioner who is so fitted.

It takes a lot of moral courage sometimes to acknowledge our weaknesses but the Omniscient One is not mortal and no intelligent person expects all knowledge, and all power and all the intricate ramifications of valuable mental, moral, and physical qualities included in the construction of one human being. We meet differing natures and mentalities and no one can question the required variations of approach necessary to the successful handling of the so-called specific classes of clientele. In general, however, if the practitioner is tactful in his method of presenting the matter, there are few patients whose confidence will not be strengthened by a frank statement that a certain branch of service can be better rendered by another operator. Again there are exceptions to all rules; again there is the logical middle ground, but always there is the paramount interest of the patient who comes to us in confidence, trusting his comfort, his health, and possibly his life not only to our service but to our decisions as to the relative value of that service weighed against the possibly attainable.

In a conference with Miss Helen McCaffrey, Supervisor of Nurses, Boston School Department, several years ago, relative to the general problem of charitable dental clinics there came to me from this able observer a line of thought that should be conveyed to every practicing dentist. She said, "We do not need in Boston more dental institutions to care for those children whose parents cannot afford to pay for service; we need more dentistry in private practice for children whose parents are able and willing to pay for it."

A decade has passed since these words were uttered with no change in the situation that would lessen their significance. Ten years ago we might have sighted the shadow of a doubt as to the importance of early attention as proclaimed by a few enthusiasts. Today the shadow has disappeared and in the full light of our present knowledge no one can disregard the value of preventive operative procedure and successfully pose as a representative of accepted professional standards.

CHILD MANAGEMENT AND OFFICE ROUTINE.

By Edward F. Sullivan, D.M.D., Secretary, Massachusetts Dental Hygiene Council.

DENTISTS in general maintain that children are unsatisfactory as patients. They say that "Youngsters break up the routine of a quiet, well-organized office; they are difficult to manage, nerve-racking and, in many cases, are positively exasperating." This need not be true—is not true of most children; on the contrary, children make delightful patients. Their version of things, and of life itself, as they see it through innocent eyes, their infinite fund of questions all go to make them attractive patients.

Gaining the Child's Confidence.

Confidence of the child in the dentist is the keynote of success. To gain and strengthen this great trust, certain qualifications are essential. They are but normal attributes, such as honesty, kindness, patience, firmness and a working knowledge of the child mind, its attitude and capacity. The greater the knowledge of child psychology, the greater measure of success may be expected.

A few rules and policies, together with the aforesaid qualifications will facilitate gaining the confidence of the child.

You, the adult, must take all the steps for adjustment of relations and be the master of yourself, the child and the situation.

Many times there exists a mutual misunderstanding, the dentist fears trouble and the child fears pain. Your fears will disappear when you have learned how to control the situation and a wonderful confidence will replace the child's fear, when you have demonstrated that you are a human being with a capacity for love and understanding.

Personal appearance is important but a child feels or sees deeper than this exterior aspect you present.

The influence of office surroundings is a powerful factor in giving the child its first impression of a sympathetic, understanding atmosphere that makes subsequent steps much easier. The office and surroundings must be clean, attractive and inviting to the child. In other words, the child must be made to feel he is welcomed and that provision has been made to make him feel at ease, even before a word has been spoken. With the mental attitude of the child in mind, furnishings and decorations should be carefully selected, bright colored decorations, toys, flowers, a small table and chair, etc.

The First Visit.

A child's first visit is a momentous occasion, generally filled with dread of the first appearance of the dentist.

At this visit the dentist's first act should be addressed to the parent, ignoring the very presence of the child. This is done to allow himself to be looked over, up and down, in and out, and sized up, classified as a brute or good sport, a cold proposition or a regular fellow, a bad egg or—just like daddy.

After having been introduced to the patient, the first look and word must be appropriate to age, sex, understanding and interest of the child. Restrained but confident, masterful but kindly, your greeting must be sincere and pleasant. Always call the patient by his or her whole name; avoid little boy or girl—they like to imagine themselves as grown up,—this same rule applies to dismissal. Your manner of greeting and dismissal gives you an opportunity to display your esteem for the child. Children love distinction and esteem. They are individuals and want to be considered as such.

At this first sitting take plenty of time. Confidence cannot be gained by rushing or appearing to be in a hurry.

Make the mother understand indirectly if possible or directly if necessary that you will manage the child while in the office, give all orders and expect the child to answer questions directed to him. At the first sitting allow the mother to sit near by but keep in the background. Afterwards it is best to have the child alone until you have established confidence. Then it will make no difference because the interest of the child will be centered on you.

Do nothing or say nothing to suggest fear or pain; if the mother does, take her aside and read the riot act.

Avoid a great display of instruments and keep necessary alcohol or gas flame out of sight.

The child should be comfortably seated and the chair elevated to a convenient working level. This offers the child a pleasant thrill: a new kind of a ride, always enjoyed.

The child having climbed into the chair is indicative of confidence, banishing fear to some degree.

Subjects of Interest.

Get the child to talk by suggesting subjects of interest fitting the mental age and show a common interest in things, such as baby-brother-sister—dog—cat—ring on finger—stories—birds—parties—radio—horses—birthday—dolls—games—dresses—shoes, etc.

The general compelling motives for boys are: bigness, growth, muscle and ability to do things better than his playmates; for girls, pretty pink cheeks, nice bright eyes and neatness seem to hold their attention. These motives change with age. With both boys and girls, to grow up to be strong and healthy is their aim and business in life.

A mouth mirror may now be introduced and a preliminary survey made. The use of the mirror should be the limit of operation at the first sitting.

Spend 3—13—or 33 sittings in gaining the child's confidence if necessary. While you may appear to be wasting time, you are actually saving time, because these are the most valuable hours you will ever spend with that child. It is the best service you will ever render; with confidence established, you can do anything you want to. Without that trust every visit will be a struggle and no good work can be done.

The first visit should be short and happy, and closed with the implied promise of more good times to come. Dismiss the child cheerfully and with an honest smile. Twenty minutes is long enough for the first visit—afterwards they may be lengthened to forty minutes. Nervous fatigue should always be considered and avoided.

After the first visit the child should be greeted first, the mother or nurse being merely a person of lesser importance. Do not try to do any work until you have completely won the child.

Make each one a friend and give them attention between visits by—birthday, Christmas greetings, post cards, little gifts, the loan of a toy until the next visit, letters if they are ill, etc.

Information About the Teeth.

As their friend and dentist, you can and are morally obliged to give them valuable and helpful information about their teeth—what they are for—how to brush them, to keep them clean and when to clean them,—about holes that might come in them, etc. Tell them about good things to eat, to make them grow big and have good teeth—such as vegetables, fruits, dark bread and to drink plenty of milk; discourage the eating of candy in large amounts between meals.

Children will follow your advice and suggestions when they will not obey a mother's order. Make your educational talk cooperative. "We are going to see each other often and be good friends. We are going to stop eating candy. We are brushing our teeth every night and morning." Children like the divided responsibility that goes with cooperation with an older person.

Always use the term "do" instead of "don't" in your work with children.

Number and Length of Appointments.

The dentist's aim is to establish and maintain a clean, healthy mouth, insuring proper mastication and normal development of the face, nose and sinuses as far as possible. It must be clearly understood that to do this effectively and constructively your service must be continuous from two years of age until the eruption of the second permanent molars about twelve years of age. At this age the dentist specializing in operative dentistry for children refers the case back to the family dentist from whom it came.

The number of appointments and hours of service per year depends entirely upon the case; the bottle fed child requires more appointments and hours of service than a breast fed child; the child seen at two years of age requires fewer appointments and fewer hours of service than a child seen for the first time at five or six years of age; more time is required if mouth conditions present cavities.

Two or three hours per year in three to five appointments is generally sufficient to obtain the maximum of prevention and the minimum of operative repair work for normal children in good physical tone, seen between the age of two and three years.

Operative Procedure.

The dental anatomy and the occlusion of the deciduous teeth differ from those of the permanent teeth, but the operative technique is the same. It is necessary to care for the temporary teeth—no cavity or defect is too small to receive careful attention and treatment. Children's dentistry is complicated by the eruption and exfoliation of teeth and the results of pernicious habits (mouth breathing, thumb sucking, etc.) Otherwise dentistry for children is comparatively simple and easy for both patient and operator.

Operative procedure should be undertaken in successive steps, graded up from the simplest to the most difficult.

The relief of pain of course demands first consideration.

The examination should include history of the case, general physical observations such as age, height, weight, color, posture, facial appearance, faulty habits, particularly mouth breathing; the teeth should be carefully charted, noting those present, and all cavities and fillings; models should be made for record and the study of occlusion; X-rays are necessary to determine pathological conditions and the number of teeth in process of formation.

If the study of the case seems to indicate any special abnormal condition such as malnutrition, adenoids or malocclusion reference should be made to the appropriate specialist. The schedule of appointments necessary for the individual case is based on the results of this examination.

The next in order is Prophylaxis, accompanied by educational talks and demonstrations in the hygienic home care of the mouth. Then the small fillings should be attended to.

If the child is seen sufficiently early, these three steps will be all that will be required.

If, however, the child presents a mouth already crippled by decay, the more serious operations of larger fillings, pulp involvement, abscessed conditions and extraction must be undertaken, the extractions last.

Almost all of these conditions can be prevented by early systematic and periodic attention combined with cooperation in home hygiene.

Conclusion.

This type of dentistry is a service, not a series of operations. To be successful, the operator must have a conception of a real health service aiming at prevention, involving not only the physical, but the mental and moral issues as well. The responsibilities he assumes are great, but the end results are more sure and of greater benefit to the patient than any other type of dental attention.

WHAT WILL BE THE PUBLIC ATTITUDE TO THE IDEA.

By Mrs. Hollis Webster.

I—only one of thousands of parents who have groped blindly for "something better," heartily welcome the dawn of this era of Children's Dentistry!

Why?

1. Because it gives us the opportunity to save our children from the unwitting mistakes our own parents made with us.
2. It will do away with the ceaseless and cruel round of repair work with the general dentist who "would rather not work with children but must because there is no one else!"
   And this repair work which goes on from babyhood to old age, we know from sad experience only ends in repetition and final disappointment.
3. Because this special dentistry will mean for the children, cleaner mouths—throats freed from the contamination of decaying teeth—better digestion, and in adolescence a stronger body, more resistant to disease.

It will be a boon indeed to us parents to have a dentist take over the responsibility of appointments.

A reasonable yearly fee charged by the Children's Dentists will mitigate the worry of trying to fit unexpected bills into the family budget, and I firmly believe that no pecuniary sacrifice is too great for parents if it makes their children stronger and more useful men and women.

Today before the very eyes of us parents is being thrown the great light of research on the relation of perfect and well aligned teeth to digestion and general well-being.

The last point which I make in my plea for special children's work among dentists is for greater cooperation between the medical doctor and the children's dentist. This can be!

Every prospective mother who in the early months of pregnancy visits her medical doctor for prenatal advice or treatment should be sent by him to the dentist who will care for the teeth of the child who is coming.

And I hope that man will be one of the noble army of Children's Dentists who will advise and tell her facts that years ago our grandmothers could not know—how important to her child's life are healthy dentition, normal jaw formation and sound teeth, and that these conditions are influenced for good only by her own prenatal hygiene and diet.

And on through the early life of the child this dentist will be, with the medical doctor, the mother's friend and adviser.

He supervises the child's diet, and his watchful oversight guards against thumb-sucking, pacifiers, bad mouth habits, and consequent jaw deformities.

From my own experience with my own children, I know that to their own dentist—not mine—they give loyalty and affection. For him they will give up eating candy and hot biscuits, and for him alone they will brush their teeth after meals.

And I hope and pray that the day is at hand when all of us mothers and fathers will have dental education enough to know the great value of preventive measures, and be made to realize that the Children's Dentist is as important a factor in their lives as that of the medical doctor who brings them into the world and cares for them afterward.

THE ATTITUDE OF THE STATE DEPARTMENT OF PUBLIC HEALTH.

By Merrill Champion, M.D., Director, Division of Hygiene, Massachusetts Department of Public Health.

PUBLIC health authorities are, or should be, interested in any handling of the dental hygiene problem which promises real success with a minimum expenditure of the public money. The present system is not really successful and involves an unwarranted expenditure of money with a maximum of administrative confusion.

Municipal authorities, at the present, seek to further dental hygiene by carrying on clinics for school children, under the auspices of the local boards of health. Some communities are attempting it through school committee funds—illegally, it should be pointed out. These clinics are more often than not undisguised dispensaries for the reparative treatment of decayed teeth. The educational aspects of dental hygiene are on the whole greatly neglected.

The State Department of Public Health, itself carrying on only educational work, would like to see the situation above referred to altered for the better. It would like to see boards of health and school departments stressing the teaching of good nutritional and dental habits rather than trying to patch up the results of poor health habits. It would leave to private dentists and dispensaries the job of carrying on reparative dentistry, and it would have this done at private, not public, expense.

To this end, the Department has obtained the advice of the Massachusetts Dental Hygiene Council with regard to a dental hygiene policy to be urged upon local communities, and it has found that the advice received coincides with its own judgment. The keynote of this policy is education directed to the prospective mother and the younger child.

Will the local communities accept these ideas? Many of them will. Much will depend upon the enlightenment of the practicing dentist since his cooperation is indispensable. Some dentists and some communities will have to be convinced of the wastefulness of the present method, since curative medicine is always more popular than preventive medicine and better understood. But acceptance is ultimately sure.

THE ATTITUDE OF THE PUBLIC SCHOOL AUTHORITIES.

By John A. Ceconi, M.D., Director of School Hygiene,
City of Boston.

TO my mind there can be no question as to the nature of this reaction—it will be wholly receptive.

May I be permitted to offer as one who has from its inception been a part of every stage of the development of a health conservation procedure which would seem to offer far more insurmountable obstacles than this, the assurance that if you men are of one mind among yourselves as to the absolute desirability of such a plan of campaign to bring about the results for which you hope, nothing can spell failure but lack of attention to detail.

It is not enough that a group of men—even a large group of men—should believe that a certain plan of action is the only one absolutely worth while; your public must be taught to agree with and believe in you; you must consistently and persistently in every way bring to shine upon your plan, the white light of publicity; you may have to admit that this was not done in the years that have gone by because perhaps you did not know any better. And so meeting with rebuffs and criticisms, and carrying on in spite of these, ever mindful of the primary purpose of your crusade, I say again, the reaction of the public health authorities can mean but one response, and that this will not be given half-heartedly, but will represent the fullest measure of responsiveness on the part of those whose professional and moral obligations are to secure for those who cannot think well for themselves all the advantages that come from being well thought of by others.

After all, this is only one more progressive step in preventive medicine. This Council is fully cognizant that a score of diseases are preventable by the application of proper medical methods, but to the accomplishment of these ends one must not only bring a conviction of being right but such a degree of enthusiasm as will become contagious.

There is little chance for success if one hesitates to put his hand to the plough or falters in the furrow, is beset with doubts, or questions the attitude of captious critics as to the intent and correctness of the course which he pursues. Success is to be obtained rather by a unified belief in the beneficent results of the plan as outlined, by unquestioned loyalty to all those agencies which are striving for its achievement, and by dogged adherence to the principles involved even though failure seems imminent.

That such a course will be pursued by the members of this society I have no doubt—no doubt also that the results will measure up to the most gratifying standards that could be wished and I take advantage of this opportunity to extend my most fervent and sincere good wishes that the greatest measure of success may attend your efforts and express the hope that my next appearance before you will be to extend the congratulations that will then have been so richly deserved.

THE ATTITUDE OF THE MEDICAL PROFESSION.

By John Lovett Morse, M.D., President, New England
Pediatric Society.

AN old adage states that "An ounce of prevention is better than a pound of cure." Believing this to be sure, physicians have, for many years, devoted more and more attention to the prevention of disease. The results of their efforts are most encouraging. Some of the most noteworthy are the diminution in the infant mortality from the diarrhoeal diseases as the result of the improvement in the milk supply; the almost complete elimination of typhoid fever through improvement of the water supply; the control of malaria and yellow fever by the destruction of the breeding places of mosquitoes; the prevention of smallpox and diphtheria by vaccination and toxin-antitoxin immunization and the increase in the expectancy of life by many years. Physicians, therefore, are better able than any other class in the community to appreciate the importance of this preventive work in dentistry which you are undertaking. I am positive that they will be with you to a man and that individually and collectively they will aid in every way in their power.

Specialists in the diseases of children probably realize, even more than the profession at large, how much harm diseases of the teeth and gums and malformations of the jaws and teeth do in early life. They know that diseased teeth, by interfering with proper mastication, and hence with proper digestion, disturb the nutrition and growth of the child and that the absorption of toxic substances from diseased teeth and gums is a not infrequent cause of disturbances of nutrition, as well as of diseases of the joints, heart and kidneys. They also know how much the nutrition and development of the child are hampered by the interference with mastication and nasal respiration caused by deformities of the jaws and teeth. They can, therefore, be counted upon to give even more enthusiastic support to these preventive measures which you advocate than the profession at large.

I do not want to be pessimistic or to discourage you in any way. I warn you, however, that your efforts will be misunderstood and opposed by the very people whom you are endeavoring to help. The more intelligent they are supposed to be, the more likely they are to oppose you. All the cults and "antis" will block you in every way they can. You will be accused of cruelty, meddling and attempting to get money under false pretenses. Do not allow yourselves to be disturbed by these accusations, however, but keep on with the good work. Cheer yourselves with the thought that you, like physicians, will eventually put yourselves entirely out of business.

APPEAL FOR ADOPTION OF THE IDEA.

BY FRANK A. DELABARRE, A.B., D.D.S., M.D.

YOU have listened to the word of the Dental Hygiene Council of Massachusetts. It is their unanimous conviction, not the opinion of one man. Every word has been weighed, every thought tested. The argument is sound, logical, unassailable, founded on reason, common-sense and the findings of science. It is not new. As a profession we have been thinking and dreaming about it for years. The second book in English about Dentistry published in 1742 dealt with children's teeth.

Fones in Bridgeport, Wilson in Cleveland, Sutton in Atlanta, Jordan in Los Angeles, McCrum in Kansas City, Thomas in Minneapolis, and many others have done wonderful things in this line but it remained for the Forsyth Dental Infirmary for Children to add the last convincing, scientific proof.

The report and figures from that institution have given me the most startling and inspiring stimulus of my professional career. Now is the time to declare for Prevention.

Ex-President Eliot said, with clear prophetic vision twenty-six years ago, to a graduating class at the dental school,

"If your professional object, henceforth, is limited to the repair and replacement of broken down human tissue, and you neglect to fulfill your obligations in connection with the prevention of mouth diseases, you will prove yourselves unworthy of your diplomas."

This is the "next great step in the prevention of Disease" that Dr. Mayo said must come from the Dental Profession.

Dentistry attacked its problem from the wrong end, and stands before you today confessing that it is a relative failure from the standpoint of Prevention.

Its success in relieving pain and suffering and in restoring, to a degree, function impaired by loss or decay, has been notable and commendable, but it has made no progress in controlling the occurrence of those conditions.

I speak for myself alone in confessing that, after twenty-three years of general practice, no patient was better off than when he came to me; all had either fewer teeth, more fillings, or more substitutes and a lowered efficiency. It was the best service I could give, but the task was too overwhelming; the problem was not understood.

Sutton has figures that all the dentists in the United States, working eight hours a day, could not fill all the cavities there now are in 115 years.

The plan of procedure to meet this situation presented today is practical; it will work and give the results we look for; it will prevent a huge percentage of dental troubles. It has been proved in public clinic and private practice.

However, results cannot be obtained without a full measure of educational service and a rigid adherence to a systematic series of appointments, dictated by the office system, and begun sufficiently early in the life of the child.

You are not going to work yourself out of a job in the next hundred years; there will always be enough repair work to be done because of the public inertia and indifference if for no other reason.

Resolutions.

Your State Society has adopted the following resolutions:

WHEREAS—Up to the present the attention of Dentistry has been centred mainly on the work of restoring lost dental tissue, and

WHEREAS—The only hope of real progress lies in the prevention or early control of dental disease, and

WHEREAS—Prevention, to be effective, must be applied early in the life of the individual—and early in the life of the tooth; be it

RESOLVED—That Dental service must begin early, and be systematic and periodic in order to obtain the maximum of prevention with the minimum of operative work, and to properly educate the child in habits of Oral Hygiene; and be it

RESOLVED—That in the aim to attain prevention of systemic and dental disease—

(a) No defect is too slight to receive definite attention.

(b) The temporary teeth should receive as much care as the permanent ones in order to promote the proper development of the jaws and head, and to maintain function.

(c) Particular care and attention should be given to developmental pits and fissures, whether occuring in primary or secondary teeth, or whether decay is or is not present; and be it

RESOLVED—That the Dental Society of Massachusetts declares for the principles and practice of Children's Dentistry, and maintains that the most effective dentistry that can be done for any individual is the service rendered between the second and fourteenth years of age, and be it

RESOLVED—That this Society calls upon all dentists to uphold these fundamental principles, and to do everything possible to promote the practice of Children's Dentistry by professional and public education, and in public and private practice.

On file in the exhibit booth of the Council you will find letters from 100 of the leading men of the profession in America endorsing this movement, and copies of resolutions passed by various state and district societies.

The question is now before you as individuals: Will you accept and act on it? You cannot evade it. You must declare for it or against it.

You have been told today that the public will demand such service; that school clinics will provide it; that the medical profession is behind us "to a man."

The Council makes no impassioned appeal for support; this is merely a cold blooded statement of facts and principles. We do not overrate the place and influence of dentistry in relation to health. It is merely our job and we want to correlate it to other similar efforts and do it well.

Tomorrow, figuratively speaking, there will be young graduates equipped to do this work; (13 of our dental schools are now teaching it).

Tomorrow the mother will come into your office and say, "Will you give my children this Service? The poor children in our town are getting it."

Your answer must be "Yes," or "No."

You may answer "No," if you so decide for any sufficient personal reason, but your moral and professional obligation demands that you then refer her where she can get it done.

If you answer "Yes," be jealous in rendering such service as will insure a greater measure of health and happiness to the child on the threshold of manhood and womanhood equipped for the battle of life.

THE VISITING AND INSTRUCTIVE DENTAL HYGIENE CLINIC.

THIS clinic has been an answer to the need of many communities of stimulating interest in Dental Hygiene by a regular educational campaign. It should be added that under special circumstances a local dentist may use part of the equipment of the clinic to do some of the most urgent extractive and fissure work that the hygienist has reported the first week of the clinic.

The following is an outline prepared by the Dental Hygiene Council.

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VISITING AND INSTRUCTIVE DENTAL HYGIENE CLINIC.

WHAT IT IS AND WHAT IT AIMS TO DO.

A Solution.

WHAT IT IS:

A traveling clinic equipped and directed by the Dental Hygiene Council of Massachusetts.

How Managed.

This clinic is conducted by a graduate dental hygienist with special training in school or public health work whenever possible; assisted by a number of undergraduate hygienists from Forsyth Dental Infirmary; (the number varying with the size of the town and the funds available).

WHAT IT AIMS TO DO:

This clinic carries on a dental health campaign in the schools of communities where no regular hygienist is employed. It demonstrates the value of such a service and aims to prove to the community the value of having healthy mouths for its school children.

The Clinic:

1. Examines all children in the schools.
2. Gives prophylactic treatment for the first three grades.
3. Refers all reparative work to the local dentist—(private or public as the case may be).
4. Puts on a dental health campaign.
5. Examines pre-school children and gives advice to mother.

How campaign is run:

1. The dental hygienist will have personal interviews with:
    a. Superintendent of schools.
    b. Chairman of board of health.
    c. School physician.
    d. Local dentist.
    e. School or community nurse.
    f. Head of Parent-Teacher Association if there is one. To get their cooperation and suggestions as to the special methods of the community. (These conferences should be held before the clinic starts if possible, unless a letter has been sent telling of the aim and scope of the campaign to be held.)
2. Meeting with teachers:
    a. The hygienist will meet with all teachers and secure their cooperation in such ways as:
        1. Grade teachers—100% "healthy mouth" rooms—distributing leaflets (Massachusetts Department Public Health).
        2. Drawing teachers—poster contest.
        3. Music teachers—health songs.
        4. Domestic Science teachers—proper food for tooth construction.

3. Newspaper publicity:
   The hygienist will interview the editor of the local papers, getting space for pictures of clinic if possible, and articles by local dentists to advertise campaign and acquaint community with results.
4. Talks:
   Hygienist will give short schoolroom talks to all grades.
5. "Dental Health Day":
   The hygienist, with the cooperation of the teachers, will stage an entertainment at the schoolhouse, town hall, or community health house.
   Each grade will have some part in the program which will vary according to size of town.
   Plays, songs, stories, slides, and movies are obtainable from the Massachusetts Department of Public Health.

WHAT IT HAS DONE.

A Demonstration.

The Visiting and Instructive Dental Hygiene Clinic has been to the following towns: Danvers, Peabody, Westboro, Andover, Wrentham.

"Communities having once availed themselves of this service invariably request a return visit or establish their own dental clinic. Hundreds of school teachers and nurses who have come in contact with this project endorse it unhesitatingly."

A Concrete Example.

Report of Clinic at Danvers—1925.

Fifteen hundred pupils were examined for dental attention—children from first to eighth grades. Notices of work needed were sent home. A public meeting was held at which the second grade staged a play—"The Bad Molar"—and the first grade gave a toothbrush drill.

Number Odontexesis (cleaning), 521. Schoolroom Talks, 39. Toothbrush Drills, 43 (Fifteen-minute talk given with each drill.) Newspaper Articles, 4. Conferences (school teachers, etc.), 10. Public Meetings, —. Health Plays and Lectures in Schools, —.Slide Lecture on the Importance and Care of Teeth, —. Number Movie Theatres—Dental Films Shown, 3. Places Posters Shown, 35. Number Times Massachusetts Department of Public Health Films Shown, 4.

Danvers has had this clinic for three years and they are getting splendid results.

It Can Do the Same for You.

WHAT THE COMMUNITY MUST DO.

This clinic is run at cost, usually from $40 to $50 a week, depending upon location of town. This amount covers all necessary expense to the community, except toothpowder or brushes, which will be furnished at cost. The Community must:

1. Guarantee and assume responsibility for operating the clinic and pay each week by certified check.
2. Secure living quarters—not to exceed $7.00 per week.
3. Transfer clinic equipment from express office to location of clinic and back.
4. Furnish suitable quarters for the clinic.
5. Assume legal responsibility for cleaning and examining children so treated.

6. Cooperating with Hygiene Council and State health officials in advertising clinic and its purpose.
7. If possible assign assistant to the hygienist—someone familiar with local conditions to help with the children and lectures.
8. Arrange for hall in case of public meeting.

HOW TO GET THIS CLINIC.

Apply to Dr. E. F. Sullivan, 520 Beacon Street, Boston, Mass.
Secretary of the Dental Hygiene Council.

He will be glad to give you further details as to exact expense, and to make special arrangements to fit the community and its needs.

PRESENT STATUS OF DENTAL HYGIENE ACTIVITIES IN MASSACHUSETTS.

From a Recent Survey.

By Eleanor B. Gallinger, D.H., Assistant in Dental Hygiene, Massachusetts Department of Public Health.

AT their best, statistics are usually uninteresting and at least partly inaccurate, yet great things have been done with their help. State surveys may be illuminating or discouraging or merely a confirmation of what you thought was the case, but they are not only valuable but necessary when a new piece of work is being launched. "Well, what has been done and where are we now?" is a natural question to ask before attempting to decide what to do next. For just this reason a large part of the last three months has been spent making an investigation into the actual dental hygiene activities in the various communities throughout this State.

Purpose of Survey.

The purpose of this survey was twofold: first, to find out how much was being done; secondly; to find out how it was being done. How many of our towns were alive to the importance of the dental problem among the school children, and if they were, how were they trying to solve this problem; are our rural towns being neglected; were dental clinics partly educational or wholly reparative; what kind of dental hygiene was being taught in the school and by whom? All these things we wanted to know, not only as a basis for further work, but to be able to compare the progress in Massachusetts with that of other States in the country.

Is Massachusetts taking advantage of her opportunities along Dental Hygiene lines? We have the largest children's dental infirmary in the country in this State. Its director, with other dentists interested in public health, is directing research and evolving methods for solving the enormous problem of tooth decay. The Dental Hygiene Council is always ready to help communities to the best service for their children or to explain public health methods to the dental profession. The State Department of Public Health has had an instructor in Dental Hygiene in its staff since 1920. Considering these facts, are we where we should be? It may be too soon to give results or to state conclusions but I would venture to say that we are not.

How Survey Was Conducted.

A questionnaire, with all its obvious limitations, seemed to be the quickest way of obtaining at least the larger part of the information desired. Personal interviews are usually necessary for a clear, accurate account of a community's activities, but with only one worker, and the whole State to cover in a short time, such a scheme was impossible. Some personal visits were made but the greater part of the survey was conducted by means of the following questionnaire which was sent to the board of health in every town or city in Massachusetts.

1. **Dental Clinics**

Location
Conducted under whose auspices Salary
No. of dentists Salary No. of hygienists Salary
No. of assistants Salary Charge for operation
No. of patients treated annually No. of pay patients
Gross expenditures Total receipts from patients
(please give figures for 1925)
Are you in the district of a traveling clinic?

2. **Educational Work**

Is proper dental hygiene taught in your school?
If so, who is in charge or the person most interested in your work?
Has a dental survey of ever been made?
Would you be interested in information concerning the "Visiting and Instructive Dental Hygiene Clinic?"

About two thirds of the towns replied to this questionnaire. Information concerning the remaining towns was culled from the reports and records kept by school nursing consultants in this Department. These reports were not all recent, of course, and there were at the end a number of towns about which we have no information. It is fairly accurate to presume that there is no dental service in said towns but we are not sure. We have tried to have the facts in this article as nearly correct as possible but owing to the short time spent on the survey mistakes are bound to occur.

Results of Survey.

The communities reporting either dental clinics or some other form of dental service number 165 as compared with 90 in 1920. The distribution of these clinics is not confined to any one section of the state.

Towns Reporting Dental Clinics.

Abington, Adams, Amherst, Arlington, Ashburnham, Ashby, Ashland, Athol, Becket, Bedford, Belchertown, Belmont, Beverly, Billerica, Boston, Bourne, Braintree, Brewster, Brockton, Brookline, Burlington, Cambridge, Canton, Charlemont, Chelsea, Chester, Chesterfield, Cohasset, Concord, Cummington, Dana, Danvers, Dartmouth, Dedham, Dracut, East Bridgewater, East Longmeadow, Easthampton, Erving, Everett, Fairhaven, Fall River, Falmouth, Fitchburg, Framingham, Freetown, Gardner, Gloucester, Goshen, Granby, Great Barrington, Greenfield, Hadley, Hamilton, Hanson, Hatfield, Haverhill, Hingham, Hinsdale, Holliston, Holyoke, Hull, Hyannis, Ipswich, Lancaster, Lawrence, Leicester, Lenox, Lexington, Lincoln, Littleton, Lowell, Lunenburg, Lynn, Malden, Manchester, Marion, Mattapoisett, Medford, Melrose, Methuen, Milford, Milton, Natick, New Bedford, New Salem, Newburyport, Newton, North Adams, North Andover, North Attleborough, North Reading, Northampton, Northbridge, Norwood, Orange, Oxford, Peabody, Pelham, Pembroke, Petersham, Pittsfield, Plainfield, Plainville, Plymouth, Princeton, Quincy, Raynham, Reading, Revere, Richmond, Rochester, Rockland, Rockport, Rowe, Rutland, Salem, Sandwich, Saugus, Scituate, Somerville, South Hadley, Southborough, Southhampton, Southbridge, Springfield, Stockbridge, Stoughton, Stow, Swampscott, Taunton, Topsfield, Townsend, Walpole, Waltham, Ware, Wareham, Watertown, Wellesley, Wellfleet, Wenham, West Boylston, West Bridgewater, West Newbury, West Springfield, Westfield, Westford, Westhampton, Williamsburg, Williamstown, Wilmington, Winchendon, Winchester, Winthrop, Woburn, Worcester, Worthington, Yarmouth.

Towns Reporting Some Other Form of Dental Service.

Ayer, Georgetown, Groton, Hawley, Hudson, Lee, Leominster, Lynnfield, Mansfield, Marlborough, Merrimac, Newbury, Norwell, Orleans, Pepperell, Peru, Savoy, Salisbury, Sterling, Tewksbury, Upton, Webster, Windsor.

There are about 210 communities offering no dental service to their children at present so there is plenty left to do.

Clinics.

Location.

Most of the clinics are located in the schools as that has proved to be the best place for the children. Less time is lost as the teachers can see that the children keep their appointments. In some towns, however, the clinics are at the board of health rooms or at the health center if there is one. Considerable inefficiency is involved in such cases. In one town for instance the clinic was in the center of the town with no communication by telephone to any of the schools—an isolated unit depending on the school nurse or the whims of the children to keep its appointments. The morning I visited this clinic the dentist in charge was unoccupied and had been for an hour. The school population for that town numbered into the thousands and the dentist should have been busy every minute. This case may show that even as little a thing as location may make or mar the value of a dental clinic.

Management.

We are anxious to know who was responsible for these dental clinics. The law concerning dental clinics in Massachusetts states:

Dental Law.

General Laws, Chap. 111.

Cities and Towns may maintain Clinics, etc.

SECTION. 50. Towns may establish and maintain dental, medical and health clinics, and in connection therewith may conduct campaigns of general education relative to matters of public health. Acting through their respective boards of health, they may unite and co-operate for the foregoing purposes and may provide for the maintenance of clinics as aforesaid in one or more of the towns so uniting.

All appropriations made for the purposes of this section shall be expended under the direction of the local board of health, and clinics established hereunder shall be conducted subject to such rules and regulations as said board may establish.

1914, 677 1920, 100

The first essential is for a clinic to be running legally. The majority of clinics are being run under the board of health, as provided by the statutes.

Towns Reporting Clinics Under Board of Health.

Adams, Arlington, Ashburnham, Athol, Bedford, Belmont, Beverly, Billerica, Boston, Bourne, Brookline, Burlington, Cambridge, Charlemont, Cohasset, Concord, Dartmouth, Dudley, East Bridgewater, East Longmeadow, Everett, Fairhaven, Fall River, Fitchburg, Framingham, Gardner, Gloucester, Greenfield, Haverhill, Hingham, Lawrence, Leicester, Lexington, Lowell, Lynn, Malden, Manchester, Medford, Milford, New Bedford, North Adams, Northbridge, Orange, Peabody, Pittsfield, Salem, Saugus, Southbridge, Springfield, Stockbridge, Swampscott, Wareham, Webster, Westfield, Winchester, Worcester.

Other clinics are run under the auspices of the local Red Cross, the Women's Clubs, the Parent Teacher Associations, or some dispensary or hospital. These I have grouped under the heading of private agencies. Town funds not being used for these, the provisions of the abovementioned statute do not apply.

Towns Reporting Clinics Under Private Agencies.

Ashby, Ashland, Becket, Belchertown, Braintree, Chelsea, Chesterfield, Cummington, Erving, Falmouth, Georgetown, Goshen, Hadley, Hamilton, Hanson, Hatfield, Holliston, Holyoke, Hudson, Hyannis, Ipswich, Lancaster, Lincoln, Lunenburg, Marion, Mattapoisett, Melrose, Natick, New Salem, North Attleborough, Oxford, Pelham, Pembroke, Plainville, Revere, Richmond, Rochester, Rockport, Rowe, Stoughton, Stow, Walpole, Wendell, West Boylston, Westhampton, Williamstown, Winthrop, Worthington.

The following towns are running their clinics illegally as they are under the school committee. Special advice concerning change of administration will be sent these towns.

Towns Reporting Clinics Under School Committee.

(Not in accordance with statutes.)

Abington, Amesbury, Amherst, Brockton, Dedham, Franklin, Hull, Methuen, Milton, North Andover, Northampton, Plymouth, Quincy, Scituate, Somerville, South Hadley, Taunton, Waltham, West Newbury, West Springfield, Woburn.

Our information concerning the details of management is less complete and far less encouraging. Although practically all the clinics are doing silver nitrate work very few are concentrating on the youngest children and practically none is including pre-school children. Very few are self supporting and the expenditures in the cases of our larger towns are very large. Dental service to a community is worth a great deal, but when the board of health is operating a clinic it is its duty to the community to have that clinic so managed that the children are receiving the maximum amount of service for the money expended.

Financial Management.

A very few of our clinics are entirely self supporting and a few are charging the children nothing. The average charge is twenty-five cents regardless of type of work being done. This covers the cost of supplies and the salary of the staff is paid by the organization running the clinic.

The staff usually consists of dentists and an assistant. The following towns are employing Dental Hygienists.

Towns Employing Hygienists.

Abington, Andover, Belmont, Billerica, Brockton, Chelsea, Concord, Dedham, Easthampton, Fall River, Framingham, Haverhill, Medford, New Bedford, Northampton, Pittsfield, Plymouth, Quincy, Revere, Rockport, Springfield, Walpole, Watertown, West Springfield, Worcester.

These hygienists assist at the clinic and teach dental hygiene in the schools. We believe that the dental hygienist is a most important link in Public Health Dentistry.

Dental Hygiene in the Schools.

As proper dental hygiene is largely a matter of education, first of the parent, and then the child, we have tried to determine how it was being taught and by whom. In the majority of towns it is left to the school nurse as one of her many duties. In a few communities it is done thoroughly as a real piece of health education by dental hygienists. There are still communities where practically nothing is being taught to the children either as to the building of strong teeth from the proper food or the care of the mouth. We are trying by wide distribution of printed leaflets to get the fundamentals of dental hygiene to our nurses and our teachers.

Conclusion.

Massachusetts has passed the first stage. In most communities the importance of dental hygiene as a part of health work for the schools is realized. There are still a few that are being held back, more by conflicting interests and poor management than lack of interest. Considerable dental work is being done; now is the time to take stock, to revise and reorganize, stressing prevention and education at every turn, so that we shall get results that we are proud of. To do is not enough—to do well should be our aim.

DENTAL HEALTH EDUCATION.

By Eleanor Gallinger, D.H., Assistant in Dental Hygiene,
Massachusetts Department of Public Health.

AT the very impressionable age of six I was given the one and only lesson on "Teeth" that I remember. A large white tooth was shown in the form of a little booklet. Inside was the red pulp and the gray dentine. Here was the telltale cavity, a little black spot just going through the enamel, the big hole reaching to the pulp (I remember thinking it large enough to fall into) and finally the abscess found at the base of the tooth. These pictures were explained and we were warned to brush our teeth faithfully or all of these terrible things would happen to our teeth. I never forgot it and brushed my teeth frantically for a week. Mother was pleased, and my sister amused—she had seen me do things frantically before.

Soon the time came for my visit to the dentist, as my family made arrangements every six months regardless of my personal opinion in the matter. He found three holes. I was puzzled, but yes,—I did remember that there had been at least three days when I had forgotten to brush my teeth. And so it has been:—I have continued to have cavities and have forgotten to brush my teeth now and then.

A New Era for Dental Education.

That was Dental Health Education as I have known it and that is all that hundreds of our children know of it today. Facts have been discovered, and methods of health teaching evolved. A wealth of new and interesting material concerning teeth, their growth, and their care, is before us. Trained experts are ready to popularize this information. Why should we wait any longer? The latest information in teachable form should be placed in the hands of every nurse doing prenatal visiting and of every teacher in our grammar schools.

Health Education as a whole is advancing rapidly. Our boys and girls are joining "vegetable teams" and "sleeping with the windows open" for gold stars. Yes, and they are brushing their teeth—all well and good —teeth must be clean for a healthy mouth, but they must be more than clean. The new Dental Health Education must go back to the beginning and teach the building of strong teeth if it is to give our children the benefit of what we now know is true, if it is to help stop the enormous amount of dental decay that now exists in the teeth of our school children. Dental Education must keep up with dental discoveries and other phases of health work. Why must we spend our efforts and time convincing mothers and children that teeth are important and should be cared for? By the time the person is thoroughly convinced, his teeth may be badly decayed. Most mothers and fathers have had sufficient experience with decayed teeth, toothaches, the discomfort of false teeth, not to mention the hole in the family budget from dentist's bills, to want something better for their children.

Whom to Educate.

Begin with the parent. Take it for granted that he realizes the importance of teeth. Experience with his own or the advertising of the toothpaste companies should have convinced him long ago. Most parents are anxious to know how to care for their children in the best possible way. Of the two parents the mother is the more important. Father should be enlisted for general co-operation especially along the lines of discipline, but it is mother who prepares the meals, who feeds the baby and who decides what she will eat before the baby is born. To be sure, she may be advised by the doctor or dentist or at a clinic and we hope that she follows such advice. However, in the last analysis, she is the important person to educate. Some suggest beginning with the high school girl, as she is the mother of tomorrow. I should rather work around to her, for the problem is less immediate, less her own and we cannot expect her to be as eager to learn or as quick to remember as the mother or the prospective mother.

After the parent the child. If carefully guided through the important years of infancy up to school age by an intelligent parent, the child in the first grade is ready to learn about teeth—what they are for, and all the reasons for mother's having taken him to the dentist when he was quite a little chap. Dental Health can be taught a little at a time from the first through the eighth grade. By the time the child reaches High School he would have good teeth and would know from personal experience as well as his talks on Teeth from the teachers what is necessary.

How to Reach Them.

Having decided whom to approach first in the new scheme of things, the next question is how to reach them. There are many ways open now and new ones are constantly developing. The radio, the press and magazines are helping to educate the parent. In many communities the Parent Teacher Association is a good way to get the parents together and a dental hygienist who is a good speaker, even if she has to be imported from some distance, will solve the problem for that community. Every Board of Health or School Committee that employs a dental hygienist should realize her value as an Educator and should arrange for her to talk to Mothers' Clubs and other organizations as an important part of her regular program. Too often she is left merely to clean teeth or to talk to the children. The public health nurse, the district nurse and especially the nurse doing prenatal visiting is an excellent means of spreading the new message. She goes into the homes and by personal contact can accomplish more in a few minutes perhaps than a general lecturer in hours.

What to Tell Them.

The means are many but what must these nurses know to tell the mothers and what is the message that dental hygienists are bringing us. This article hardly permits a long discussion of the facts but the most important ones are surprisingly simple and should be mentioned. The keynote of the message could be such facts as these—

1. Good teeth must be well built. They must fit together and they must be kept clean.
2. Baby's first teeth are all formed when he is born. If they are to be sound and strong the mother's diet must include one quart of milk, some dark bread or cereal, some fruit, some green vegetable each day.
3. To build strong second teeth baby should be breast fed first of all; from two years to one hundred and two years of age his diet should include fruit, green vegetables, dark bread and milk.
4. Thumb sucking may cause crooked teeth, spoiling the child's appearance and threatening the health of the child's teeth.
5. Baby's first teeth should be examined by the dentist when they have all erupted. They are very important and mustn't decay.
6. Take the child to the dentist whenever a second tooth erupts. Don't wait a day. It may have tiny cracks in the surface. These are called fissures and are the cause of decay. If these are filled and the teeth watched regularly by a dentist the child *will never* have a cavity.
7. The teeth should be cleaned twice a day to keep the mouth healthy and the food that is being chewed clean.

These are the fundamentals. If the mother understands why she should eat the right food and why her son should, and why she should take him to the dentist when a tooth erupts instead of regularly every six months the way my family did, the battle is practically won.

How to Tell Them.

No article on Dental Health Education would be complete without a few suggestions as to how this information can be put into attractive form for mothers and most of all for our school children. Again it is a case of using what we already have, changed slightly to meet the requirements of our new information. For adults, for instance, slides or delineascope films are perhaps the best ways of making the Dental Health Talk interesting. Have these slides show the effect of mother's wrong diet on baby's first teeth; how thumb sucking pulls the upper arch out of shape. Show what "fissures" are, how they are formed and how they are filled.

Dental Health Teaching in the school should be along these same lines. Use all your devices such as charts, teams, gold star rewards, posters and exhibits that are available, but begin in the first grade and teach the children first the idea of building. It is logical and the child will see that the way to have a good brick house is to use plenty of good bricks rather than painting the house after it is built. Tell them of the little factories that are running day and night in their jaws, how they must supply the little health brownies with the right material if they are to have good teeth. Make it a story, draw pictures with bright colors, make the thing as vivid as possible but all the time keep it positive. Positive is a word we hear so often in connection with all health work and it is most needed with teeth. I saw the tragic picture of decay and it fastened itself on my childish mind. Why shouldn't children learn to prevent disease by vivid constructive means, instead of pictures of the very disease itself? Teach the value of the toothbrush and give toothbrush drills, but not first. Respect the understanding of your child.

Tell him the first things first and let him see the logic of it. Call fissures "cracks." All children know what happens to a door or a ceiling that has a crack if it isn't filled. This new knowledge is just as vivid, just as easy to teach and infinitely more important than how many teeth we have, or how many times a day we should brush our teeth. In the higher grades teach with a machine in mind. The average child of today thinks easily in terms of machines and can be made to appreciate the importance of the dental machine. These new methods appeal to children through understanding and pride in having good teeth and health, rather than through fear.

Dental Health Education must teach prevention first to the mother and then to the child, using all available ways of making the information at hand interesting and all available channels for spreading such information. Away with charts of decaying teeth and the fear of the dentist! We have a new and better story to tell.

THE DENTAL HYGIENIST.

By E. Melville Quinby, M.R.C.S., L.R.C.P., D.M.D., Lecturer and Instructor, Forsyth-Tufts Training School for Hygienists and Harvard Dental School.

THE dental profession consisting of about 50,000 practitioners, is confronted with the dental problems of a population of 115,000,000. Fifty thousand into one hundred and fifteen millions—that does not seem adequate. No, but remember that only about fifteen millions know the dentist at all. There is an enormous untouched field of about eighty to ninety millions or more, who need instruction and treatment.

The question arises who is going to do this; obviously the dentist cannot do any more than attempt the reconstruction of the devastated areas. What is the solution of the problem?

The answer is two-fold, viz. a revision of the Dental School curriculum for the future; the employment of the Dental Hygienist in both the public and private field for the present.

The Need for the Dental Hygienist.

With regard to the necessity for, or desirability of, a corps of Dental Hygienists many opinions have been offered. But as so often happens when something new is presented there have been many criticisms offered on no other basis than that of prejudice or ignorance of the facts. At a meeting held in Pennsylvania some years ago when the subject of the Dental Hygienist was under discussion, one gentleman is reported as saying that cleaning teeth anyway was a "degrading, disgusting and menial practice"; and that if his patients would not clean their own teeth, they would remain dirty so far as he was concerned. How, forsooth, is the average layman to acquire the knowledge necessary for an adequate mouth toilet and how realize that there are five surfaces on each tooth—the posterior especially—to be freed from films or plaques containing fermenting and decomposing particles of food stuff, dead and living bacteria in countless millions, lime salts, all embedded in varying degrees of thickness in a mucinous or gelatinous net work? How is the said layman to know what kind of tooth brush to buy or how to use it? What kind of floss-silk to obtain or how to use it? Whether to use a powder or a paste or both, or only salt and water? And so on ad infinitum? Then again the question may be asked: How many dentists take the time to instruct the patient in the best method of mouth toilet?

It is stated that if the children at school had all the dental attention necessary, the 50,000 dentists of the country would have their hands full. What then would happen to the swarm of repair cases, with which the said 50,000 are at present so busily occupied? But how many dentists would welcome a school practice as the end-all and be-all of their life work? One would also like to ask as to the condition of the mouths of pre-school children. Who is looking after them? The mother? Well, who is educating the mothers? The dentists! Well are they? What about the prenatal stage of existence—have the dentists as a body time to instruct the prospective mother by the thousands as to the right kind of diet and healthy living as a prerequisite for the development of a strong, healthy infant with adequate skeleton and teeth?

In my opinion the adequately trained Dental Hygienist is doing more now in the way of educating mothers and children with regard to the acquisition of a healthy mouth than any one else, especially in public work. But let me call attention to the fact once more that the average dentist is submerged by work which to a large extent could have been prevented by an understanding use of preventive measures submitted from the earliest stage of development.

The Community Program.

Being convinced then that the necessity for the Dental Hygienist is established, it remains to point out or indicate her possibilities for beneficial work in the community.

The field can be divided roughly into (A) Public and (B) Private: and both sub-divided into (a) Educational and (b) Practical.

In Group A, sub-division (a) (Educational) the Dental Hygienist can conduct her propaganda through:

1. Health Department.
2. Boards of Education.
3. Clubs.
4. Churches.
5. Industrial Plants.

by means of

(1) Public Campaigns.
(2) Lectures.
(3) Motion Pictures.
(4) Newspapers.
(5) Exhibits, etc.

In Group A, sub-division (b) (Practical), the Dental Hygienist can inculcate the principles and practice of a rational system of diet in:

1. Prenatal stage.
2. Birth to two stage.
3. Two to six stage.
4. Six to sixteen stage.
5. Sixteen to twenty-five stage.

through

(a) Practitioners.
(b) Dispensaries.
(c) School Clinics.
(d) Industrial Clinics.
(e) Hospitals.

The Dental Hygienist is entirely within her scope in instructing the Public through the various channels aforesaid that the oral machine must be fostered on certain specified lines to develop into a smooth working and efficient piece of mechanism; that to insure this condition, the parts of the machine must be made strong and stable; that the various parts of the mechanism must be in alignment; and that such parts must be kept cleaned (and oiled).

Mention has already been made of the Educational and Practical methods open for the adoption by the Dental Hygienist on the Building-up lines. Coming to the fitting or alignment of parts of our machine, the Dental Hygienist can give good advice to mothers as to supervision of the child's teeth with reference to certain evidences of Malocclusion, e. g., educationally by:

1. Lack of separation of incisors.
2. Excessive over-bite.
3. Over-bite, etc.

and, practically, by reviewing the question of diet in all stages of development and by referring cases needing Dental Orthopedics or Orthodontia to the family dentist.

In the section of Cleaning necessary to the upkeep of any machine, again the Dental Hygienist is capable of giving good counsel by educational lines and also doing practical work in either institution or office and giving instructions for home co-operation of an intensive character, such as, advice concerning:

(a) Right kind of brush.
(b) Right method of using same.
(c) Ribbon floss silk.
(d) Appropriate tooth paste or powder.
(e) Massage of soft parts.

As a concrete example of useful work in the public field it is interesting to study a report by Miss Gladys White, D.H., giving an outline of her program for dental hygiene work as carried out in the schools of Plymouth, of which there are sixteen in number; fourteen grammar, one high, and one junior high. She deals with about two thousand out of a total of two thousand, six hundred pupils.

The first four grades are visited by Miss White for educational work and oral inspection, and the first six grades for Odontexesis (cleaning). The following are quotations from the introduction to her report:

"The principal thing we stress today is the diet, as we are working for prevention, not repair. Cleaning of the mouth is particularly needed with children, so we teach this next; then lastly the value of repair work."

The following is the special report mentioned:

Program for Dental Hygienists in Schools.

"Program of Dental Hygienist in Plymouth—

This report covers the work of my seventh year as Dental Hygienist for the public schools of Plymouth. It is my constant endeavor to improve the methods by which I teach the children the value of clean and wholesome mouths.

In grades one, two and three my program at present is as follows:

September: "Teeth". "What and where they are". "How to care for the teeth".

October: "Care of the teeth" review: Give each child a wooden tongue depressor and teach the correct motions to be followed in brushing the teeth.

November: "Tooth brush drill". Each pupil brings his or her tooth brush to school wrapped. Three paper cups containing respectively water, salt solution and tooth paste are placed on each desk and all go through the various steps previously taught in unison. Each pupil individually is shown how to thoroughly rinse the mouth after the drill; also how to rinse the tooth brush.

December: "Value of milk". Pupils are given a picture of a milk bottle with a smiling face on it to color.

January: "The six year molar". This tooth is talked about, specimens are shown and each pupil by looking into a mirror finds the tooth. (This is a permanent tooth and will be the last one in the child's mouth on each side until he is nearly twelve years old.)

February: "Importance of green vegetables and fresh fruits". By talking about them, showing pictures, allowing the pupils to color pictures, and reading stories concerning them I teach their importance.

March: "Decay". Specimens of various teeth that have been extracted in the school clinic are shown. Diet is stressed and stories about the effect of candy on the teeth are read.

April: "The second teeth". A model of the second set of teeth is shown and their characteristics pointed out in a simple way.

May: "Examination of tooth brushes". Each pupil brings his tooth brush to school. I examine it and if the bristles will come out it is replaced by a new one. (New brushes are furnished to the children for five cents.)

June: "Awards are given out". All pupils who have taken good care of their teeth throughout the school year are given an attractive pin, button or similar reward.

"In the fourth grades we now use "A Child's Book on the Teeth" by Ferguson. This book is cleverly written and illustrated.

Each month we read two chapters and answer ten review questions on the chapters we read the preceding month. All a child needs to know about the teeth is interestingly told in this little book."

Summary.

In summary I would draw up the following logical deductions:

1. There is need for the Dental Hygienist especially in the Public field.
2. In school work and in community circles from both practical and educational points of view the Dental Hygienist is a factor in promotion of General Health.
3. In such practice as stimulation of gum tissue, the dental hygienist is carrying the general scheme of physical culture one step further.
4. Cleaning teeth and stimulation of gum tissues is necessary for citizens of the United States regardless of dental health of other nations or tribes.
5. Cleaning of teeth, etc., is only one link in the chain of measures necessary for the development and upkeep of a healthy and efficient masticating machine.
6. Lastly the dental hygienist is not only needful to the community in carrying out principles of decency in mouth toilet, but is capable of educational stimulus too and the development and upkeep of general health. Good teeth implies good health and good health spells good teeth.

THE PRENATAL DIET AS A FACTOR IN PREVENTIVE DENTISTRY.

BY RUTH H. WHITE, S.B., DIRECTOR, FOOD AND HABIT CLINIC,
FORSYTH DENTAL INFIRMARY.

TO those who are interested in true prevention in dentistry, the dietary needs of the expectant mother assume the greatest significance. Important as are other aspects, such as early treatment and the control of caries by prophylactic measures, true prevention cannot begin until the best of our present-day knowledge is applied to the period of actual tooth development.

This knowledge indicates the necessity of medical supervision throughout pregnancy, early and regular dental treatment, plenty of sunlight, and habits of hygiene which promote general bodily and mental well-being. Heredity has unquestionably a decisive influence upon the teeth. Endocrine diagnosis and treatment is assuming an important position as part of the medical care. In addition to all these factors the diet of the mother during the period when the teeth are forming has its contribution to make to their character. Animal experimentation has repeatedly shown the disastrous effects on the young of the pregnancy diet which is deficient in proteins of good quality, minerals and vitamins. Can we expect sound, strong teeth in the child who is poorly developed from birth, whose resistance to infection is consequently low through the critical period of infancy and early childhood when the secondary teeth are forming?

Breast-Feeding.

Breast milk of good quality we know to be partially dependent upon the mother's vitality and bodily resources, as well as the food materials which she receives during the period of lactation. Breast-feeding is readily acknowledged as one of the determining factors in good dentition, not only because it goes far toward insuring health and resistance to infectious diseases at a time when the teeth are peculiarly susceptible, but also because it develops the jaws and dental arch, providing for future symmetry and normal occlusion. Can we expect the mother whose diet during pregnancy consists of meat, tea, white bread, and vegetables only on Sunday to nurse her baby satisfactorily during the first few months of life?

Development of the Teeth Before Birth.

Early in pregnancy the development of the teeth begins. By the seventh or eighth week the tooth buds for the first teeth may be distinguished. The enamel organs appear about the fifteenth week and calcification of the incisors starts about the twentieth week. At birth the crowns of the first teeth are completely formed and the cusps of the first permanent molars are in process of formation. It is clear, therefore, that the character of the teeth is in great measure determined before birth. From the diet of the mother or her bodily reserves must be obtained the minerals necessary to develop and harden the enamel properly.

In the process of human reproduction, there seems to be a tendency toward the protection of the baby at the expense of the mother. In the Forsyth Clinic, indication of initial caries is rare in the teeth of women whose diets contain ample supplies of milk, fruits and vegetables, whereas it frequently appears in five or six teeth of mothers who, because of insufficient income, ignorance or indifference fail to eat these foods. This withdrawal of calcium from the tooth structure may be interpreted as an attempt on the part of the foetus to meet its own needs. But such a sacrifice of the mother's teeth is serious and apparently unnecessary, and moreover cannot be relied upon to protect the child.

Minerals.

What are the nutritional requirements having a favorable influence on tooth formation? Since calcium and phosphorus are the chief constituents of tooth structure, they must primarily be considered. The daily calcium needs of the normal adult are accepted as .67 grams. At birth the average content of calcium of the foetus is stated as 28.3 grams. During the last two months of pregnancy, Bar gives the daily foetal absorption as .638 gram calcium oxide. From this study Mendenhall concludes, "There seems to be good evidence to estimate that the need of the pregnant woman for calcium is half again as much, if not twice as much, as that of the non-pregnant woman, or not far from 1.1-1.4 grams calcium daily." (Journal Home Economics, Vol. 16, No. 10, p. 576.) The increased need for phosphorous can presumably be met by the same foods which supply the calcium requirement, especially since phosphorous is more readily utilized.

Milk is the factor of safety as far as the mineral needs are concerned. Without one quart of milk daily it is difficult to meet the requirement as estimated above. A study of twenty cases on the first visit to the Forsyth Clinic shows the daily intake to average 1 qt. daily in 31%, 1 pt. in 41%, and less than 1 pt. or none in 27%. These mothers represent a group above the average of out-patient attendance both in intelligence and income, and yet nearly one-third are taking less than the minimum amount of milk.

Vitamines.

The apparent relationship of anti-rachitic vitamin D to calcium and phosphorus retention suggests the taking of small amounts of cod liver oil in pregnancy although as yet this practice has not become established. Lack of vitamin C has also been conclusively demonstrated to be closely associated with abnormalities of tooth development in animals. During all periods of growth, adequate proteins are necessary in the diet of the expectant mother and they are presumably as essential in the foundation of the dental structure as in other cells of the body.

Health Teaching.

With the results of extensive research in mind, we are prepared to replace the general, negative advice which the pregnant patient used to receive with positive, specific teaching. To the normal expectant mother we can safely present such simple guides as these, adapted and amplified to meet the individual needs:

Take one quart of milk daily in the forms which you like best.

Eat two vegetables besides potato every day, remembering that greens and raw vegetables are most important. Use the water in which vegetables are cooked.

Eat fruit daily, uncooked whenever possible. Oranges and grapefruit are especially valuable.

Use dark bread or a whole grain cereal each day.

Use brown sugar and dark molasses frequently to replace white sugar.

Unless forbidden by your doctor you may have an egg or one small serving of meat or fish daily.

With this as a foundation and other foods added to make up the total amount needed, the dietary will provide the necessary iron as well as calcium, phosphorus, protein and vitamins. The weight of the mother should be carefully watched and with the doctor's approval the overweight woman may be reduced to within twenty pounds of her normal. As in all low caloric diets, special care should be taken to safeguard the mineral containing foods.

The mother should eat slowly and at regular intervals. She should masticate thoroughly, choosing daily hard toast, raw cabbage, or other foods needing vigorous chewing. Her supper is preferably light, followed, if desired, by a glass of milk at bedtime. She must guard against constipation by drinking approximately eight glasses of water daily, by establishing regular habits and by using freely vegetables, fruit, molasses and whole grain.

The suggestion that her choice of foods is of the utmost importance in providing good teeth for her baby makes perhaps the most successful of all dietary appeals to the expectant mother. Her own unsightly mouth and the unattractive teeth of her children are often a warning. Charts showing the development of the teeth during pregnancy seldom fail to impress her with her responsibility and opportunity to provide the best material for growth.

A carefully selected diet during pregnancy is by no means the only road to sound dentition. But preceding breast feeding and normal nutrition during infancy and childhood, it should lead far toward the state of robust health which includes strong teeth, well fortified against their environment.

WHAT IS A FISSURE?

By Anna Quincy Churchill, A.M., M.D., Assistant Professor of Microscopic Anatomy, Tufts College Medical and Dental Schools.

FIRST of all, why are we so concerned about what a fissure is? Probably a fissure in the enamel of a tooth offers a good culture ground for bacteria and a means of entrance for caries. Although a tooth with a fissure may never decay, the presence of a fissure is such a frequent menace to the integrity of the tooth that the filling of fissures has been a subject that has claimed the attention of dental men recently. Dr. T. P. Hyatt advises the filling of fissures even before caries begins.[1]

In order to act upon this advice we need to understand exactly what is meant by the term "fissure." In the normal development of teeth grooves may be formed on the surface of the enamel. Enamel is laid down upon the already formed dentine, beginning at the top of each cusp, and as the caps of enamel enlarge, ultimately there is a meeting of the enamel at the sulcus or groove, between the cusps. Dr. Bodecker explains the formation of a fissure as the result of "irregularity or a cessation of enamel development" such that "the junction of the enamel lobes will not be calcified". This may occur, he says, due to nutritional disturbance in a child at this time.[2]

He has quoted the following explanation of a fissure by Dr. Black: "Grooves along the lines of junction of the lobes of the teeth are normal. When these are of such depth as to merit the term 'fissure' they are abnormal and are faults."[3] Dr. Bodecker's own definition of fissure is as follows: "The fissure instead of being a simple groove with a continuous surface in normally calcified enamel, is a cleft between two steep enamel walls filled with non-calcified material."[2]

Sometimes a fissure may be so slight as to be detected with difficulty with the finest Darby explorer, or it may be wide enough to be easily discovered and deep enough to penetrate to the dentine.

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[1] Hyatt, Thaddeus P., Prophylactic Odontotomy—Dental Cosmos, March, 1923.

[2] Bodecker, Charles F., Microscopic Study of Enamel Fissures with Reference to their Operative Treatment—Dental Cosmos, October, 1924.

[3] Black, G.V., "Operative Dentistry"—The Pathology of the Hard Tissues of the Teeth—Vol. I, 1917.

THE COMMONHEALTH.

QUARTERLY BULLETIN OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Sent Free to any Citizen of the State.

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
FRANCES KLEIN, S.B., ASSOCIATE EDITOR.
Room 546, State House, Boston, Mass.

Why More Milk Legislation? — In this day and generation when everyone must have an easy solution of all real or imaginative ills, legislation relative to a given matter has been accepted as the last resort of the unimaginative. Last year when the Department introduced milk legislation some groaned and asked, "Why more milk legislation?" Let us see what was the excuse and will be the excuse again for introducing a modification of the same bill at the next session.

There is no doubt that a certain amount of tubercular infection elsewhere than in the lungs is produced by a bovine bacillus carried in milk. It is variously estimated that from 25 to 75 per cent of such infection is so carried. This spring the Lakeville State Sanatorium has been turned over to the care of tubercular infections other than in the lung, which include infections of the bones, joints, peritoneum, meninges, kidneys, glands, etc. This institution costs the State about a quarter of a million dollars a year. In addition some $50,000 to $70,000 a year is being spent for the underweight clinics in the schools, one purpose of which is to discover cases of non-pulmonary tuberculosis sufficiently early so that the most possible may be done in the way of permanent cure. Is it not absurd to spend this considerable amount of money if we are not stopping up this obvious source of infection?

What is the present milk situation in Massachusetts? Some twenty of the larger communities already have regulations requiring that all milk sold within their jurisdiction be either from tuberculin tested cattle or pasteurized. This represents protection to about a million and a quarter of the four million persons in the Commonwealth. In addition about another million is protected by pasteurized milk sold in communities without such regulations. That leaves, roughly estimated, a million and a half persons daily exposed to raw milk from untested cattle. The situation is such that it is said that at one of our large children's hospitals when a child is admitted with tubercular meningitis or tubercular peritonitis and there is no history of contact with a case of tuberculosis in the family the question is asked, "What rural community does the child come from"? Almost invariably it is found that the home is in one of the rural sections of the State. There are those who, with this condition existing, advise us still to wait even though at least three States have already passed bills similar to that desired by the Department.

In addition to the health of human beings there is the important economic aspect to the farmer which centers in the health of the cattle. There are those who pooh pooh the tuberculin test and will tell of its failures ad nauseam. However, this is true in a varied degree of precise cases such as cultural diagnosis in diphtheria, the Wassermann reaction in syphilis, etc. It remains a fact that the tuberculin test has been effective in some of the Western States as well as some of the New England States in eradicating tuberculosis and that at present in Massachusetts there is a higher percentage of infected cattle than in any state in the Union. The farmer with vision recognizes that as in other matters, although there may be immediate loss, such losses must be faced in the interests of ultimate economics.

Another reason for the state law is that many dealers serving more than one community are faced with the difficulty of complying with multiple and constantly changing local regulations. This is irritating and unfair in that it puts them in competition in certain communities with persons selling milk at a lower standard. Fundamentally the interests of the farmer and the health officer are the same in that they both desire to increase the per capita consumption of milk.

For the next session we desire to redraft our legislation in such a form that it will obtain the maximum health protection with the minimum hardship to the farmer. It would require that ultimately three types of milk should be on sale in the Commonwealth: first, raw milk from cattle that have been tested with tuberculin and found not to react; second, pasteurized; and third, milk from untested herds whose owner has applied and is waiting for a test. In addition we are considering bills which will assure remuneration to farmers for their reacting cattle and which will increase the adequacy of the supervision of the pasteurizing plant.

We are obtaining the highest degree of co-operation from the Department of Agriculture and the Division of Animal Industry of the Department of Conservation. In addition we are asking advice from the outstanding representatives of the farmers and are taking every opportunity to discuss the matter with the milk producer.

The State Federation of Women's Clubs and the Massachusetts Parent-Teacher Association have offered us an opportunity to present this matter in the fall.

It has been said that any new legislation must be introduced at least eight years before there is hope of its passage. If this is true after this year we shall have but six years to wait. It has been suggested seriously by a health officer in the State that the solution of the milk problem is to educate the people away from drinking milk. Unless we can be assured of a reasonably safe product health officers are certainly not sound in urging greater consumption of milk and the answer is either a safer product or some such program as the health officer has suggested.

Is Your Dental Clinic Lawful? — For generations we have heard it declaimed by statesmen and those who would be statesmen that we live under a government of laws, not men. Most people who think the matter through realize that this ought to be true. Yet how widely divergent, often, are our theory and our practice. A good example of this divergence is seen in many towns with reference to the conduct of dental clinics.

As far back as 1914 Massachusetts passed a permissive law allowing towns to establish dental clinics under municipal management. Before that time there was no statutory authority for such clinics. The statute of 1914, reaffirmed in 1920, placed the responsibility for such clinics on the board of health. This was a wise provision so far as a choice of board is concerned since there is no good reason for any other board getting into competition with the established municipal health agency in the matter of furnishing health service at town expense. Care of the town poor by the overseers and medical supervision of the school child by the school committee are apparent but not real exceptions to this rule.

There being no ambiguity whatever about the statute, it would seem as if the matter were settled: all cities and towns expending municipal funds for dental clinic ought to be doing it under the auspices of their boards of health. But unfortunately for our reputation as communities carrying on our work in accordance with law, this is not the case. A number of school committees with good intentions but in disregard of the statutes spend school money for dental clinics. The arguments that they can do it better than someone else; that no one else wants to do it; that the public wants it so; are entirely beside the point. It is not lawful to do it that way and that should settle it for the city and town boards entrusted with the serious responsibility of bringing up the next generation to be law-abiding citizens.

How about your city or town, Mr. School Committeeman, Mr. Auditor, Mr. Treasurer?

Anticipating the School Medical Inspections. — The Child Health Movement in our country is growing very rapidly. The workers at the front—by these are meant educators in our colleges, universities, and normal schools—and our foremost doctors and public health authorities consider health education from a comprehensive angle. Sooner or later all will accept it and think of it not as a new vogue foisted upon schools for a season, but as an integral part of the scheme of public education.

Small communities will say it is an elaborate structure, too costly and too ideal. The saner viewpoint is for them first to become acquainted with the extent of a complete health program then to adopt the essential parts in proportion to their special needs as in furnishing a smaller house.

As an essential for any town plan of education, the pre-school as well as the entering school child requires a thorough physical examination. The more the parents regard it as an advantage to the children, the more benefit is derived. The parents should be present at this examination for the following reasons:—

1. It gives them first-hand information—a chance for the school doctor to demonstrate and explain why symptoms found are indicative of special defects and the handicap that they present to the child's happiness and efficiency. It increases the respect of the parent for the physical examination.

2. The parent's observation has a direct bearing on the kind of examination the doctor follows.

3. It brings about a mutual understanding between the parent and the teacher. The father or mother sees the background into which their child is fitted.

4. It saves the time of the school nurse, since such a splendid mutual understanding at the start eliminates prejudice and the need for a system of persuasion carried over for the whole year.

With a school population of five hundred or five thousand children, there must be some one to prepare the notices of defects for home distribution. This falls to the nurse and eats up considerable time. The presence of the parent is a more direct and economical method. Its disadvantage would be in rural communities where homes are scattered and travel less easy. However, if it is advertised as an important event of the year and if notices are sent of the exact date of examination, plans for attending could be made accordingly. In the large proportion of cases it may and should be the routine procedure.

Such a system working happily presents such an interesting picture of the school doctor who knows at least half the families in his community and the history of their diseases and the contacts with that disease, who is so interested in the children that he will hand over this knowledge to the nurse, who is keen to secure results.

Given these factors plus a teacher eager to develop the native endowment of the child to its maximum, and parents responsible enough to come to the school for first hand information, and it does not take a crystal gazer to predict that that school is going to diffuse a vitality contagious to all surrounding towns. That is one beauty of health work—it is just as contagious as disease not only through direct contact with individuals as in measles, but indirectly through conversation and newspaper reports.

We need to reverse our thought and encourage "epidemics" of health through inoculation of sound health information to parents at the school examination.

Infantile Paralysis. — Infantile Paralysis (anterior poliomyelitis) is one of the few infectious diseases in which the mode of transmission is still unknown. Consequently, we are not able to take effective measures to prevent its spread.

Experience in Massachusetts has not borne out the assertion made elsewhere that the disease is more prevalent in the country than in the city. Outbreaks may occur either in the city or the country.

For the past 5 years the number of cases reported in the state has remained nearly constant. For the current year the number of cases reported to date (July 15) is only slightly in excess of last year (30 last year, 36 this year). The disease is distinctly more prevalent during the summer months than in the rest of the year.

Patients with Infantile Paralysis should be isolated in the acute stages of the disease in much the same way that we isolate a typhoid patient. They should be protected against visitors and against insects (flies, mosquitoes, fleas, etc.). They should have separate dishes and silver which are scalded after use. The body discharges should be disinfected as in typhoid.

There is no evidence that regulations against the congregation of persons, such as might be used in the presence of an epidemic of a disease spread by the upper respiratory tract, have had any influence in controlling infantile paralysis. This would be expected when the relative infrequency of secondary cases in a family is considered.

It is well to remember the possibility of the disease being spread by discharges from the gastro-intestinal tract. If this be considered one of the modes of spread, then one must in turn remember that foods eaten raw may be contaminated.

Dr. Bernard W. Carey, formerly epidemiologist of the Massachusetts Department of Public Health and for five years Director of the Division of Communicable Diseases and Deputy Commissioner of Health for the Massachusetts Department of Public Health, has recently been awarded the honorary degree of Doctor of Public Health by the University of Georgia. Dr. Carey is the Director of the Commonwealth Fund Child Health Demonstration in Athens, Georgia. The degree was given in recognition of his services in promoting child health in that state.

MATERNAL AND INFANT HYGIENE SECTION.

COMPILED BY SUSAN M. COFFIN, M.D.

The Child Speaks to His Parents.

"Father and Mother who have given me life, rear me in health and joy. Feed me each day foods suited to my body's needs. Teach me the blessings of sunshine and fresh air, cleansing baths and sweet sleep. Protect me from disease.

Guide my mind as well as my feet in the House of Health. Teach me to obey and to be honest and sincere, to control my temper and to be kind. Be always my example.

Keep me from dark thoughts and harmful habits, and lead me into the sunlight of wholesome thinking, healthy living and safe friends. I count your love for me by the wisdom of your care.

For the hours of your dear lives that I demand, for your patient understanding, for the labors of your hands and of your hearts, for your companionship and wise parenthood, I shall repay you by my health, gladness and good citizenship, and my love and reverence for this house and you, all through my life."

Taken from "Runabouts in the House of Health" American Child Health Association.

The Summer Round-up.

In July, 1925, the National Congress of Parents and Teachers started a "Summer Round-Up" of children entering school in the fall. This "Round-Up," having met with good response, and being a project highly worthy, is being continued this summer. The purpose is to correct the defects of the pre-school child so that he will be ready to enter school in 100% condition in the fall. The result should be fewer handicapped children in our schools, and therefore fewer repeaters. On this score alone the Summer Round-Up is an economic measure. It is also an incentive to parent-pride and a challenge to community organizations which look out for neglected children.

SUPERVISION OF A WELL BABY.

EXTRACTS FROM A PAPER BY MISS SALLY PEW, MATERNITY SUPERVISOR, COMMUNITY HEALTH ASSOCIATION, BOSTON.

THE purpose of well baby supervision is to teach every mother the proper care of her baby in order that it may have all the possible chances for a normal growth and development without the handicaps caused by needless illness.

Adequate health supervision and the relation between the home visit and the conference with the physician in charge, or the private physician, are so close that one without the other loses most of its value.

The following are some of the requirements of a nurse who is supervising well babies:—

First: Knowledge of her subject. The nurse should know the normal development of the baby from the psychological standpoint as well as from the physical. She should have a thorough knowledge of the principles of infant feeding. She should know the symptoms of the various diseases which occur in infancy, such as the symptoms of the contagious diseases and cerebro-spinal, and tubercular-meningitis, tuberculosis, peritonitis, pyloric spasm, intussusception, etc.

Second: She should have a knowledge of how to teach so successfully that the mother will put into practice the lessons learned. This implies the ability to explain in such a simple way the things she teaches that the mother will understand and remember.

Bottle-fed babies, as a rule, need closer supervision than breast-fed babies. Weekly or daily visits should be made when necessary and the indications for the more frequent visits are as follows:—

First: When the baby is first put on the bottle.
Second: When the baby is not gaining satisfactorily.
Third: When there is any unusual condition, such as:—

- a. A difficult and ignorant mother who does not carry out the physician's orders or who does not come to conference regularly.
- b. When an infant shows symptoms which should be watched.
- c. When there is any type of faulty digestion.
- d. The inexperienced mother with her first baby.
- e. The fatigued or worried mother.
- f. When it has proved necessary to demonstrate the formula making several times.
- g. When social conditions in the home need adjustment.

We realize that the foundations for health should be laid in infancy. In training the baby during its early months to sleep, eat and to have fresh air and exercise regularly and at the proper time, the mother promotes its normal development and the formation of proper habits which when formed in early life are the ones that last.

Child health is not a fad or philanthropy. It is the highest form of business and yields the richest returns to the State.

—George Fitch.—*San Francisco Chronicle.*

Letter From Fall River.

Miss Nora M. McQuade, Executive Secretary of the Maternal and Infant Welfare Commission of Fall River, sends the following data on the progress of the breast-feeding campaign in that city:—

Cases taken on up to May 1st	—	150
Weaned entirely	14	
Complementary feeding	16	
Entirely breast fed	120	
		150

"Some of these 'weaned entirely' were never nursed at all because the mothers did not want to nurse the baby. Others were ill and were advised to wean the child by their physician. Others went to work. Others said they had no breast milk and were not willing to try to increase the quantity.

"The majority of mothers who are giving a complementary feeding part time have about the same excuses: some are working; breast milk becomes scanty and they are not willing, or at least, do not do their share in trying to improve the amount. It is rather noticeable that the woman with several children who has never nursed her babies for any length of time is the one with whom we have the least co-operation. It is very difficult to change this mental attitude.

"On the other hand, when a mother tells us a physician has said she can wean her baby or give a complementary feeding without really giving a formula, he has been quite willing to have us try to continue the breast feeding upon asking his co-operation. We have been able to induce two mothers to put their babies back on the breast after returning from the hospital with a complementary feeding."

WHAT IS A NORMAL CHILD?

From the Daily Bulletin of the American Health Congress.

Our ideal is not only a child free from disease, it is also a child made free to develop to the utmost his capacity for physical, social and mental health. This means liberty to grow, the modern idea of education. Since conditioned environment is essentially the basic feature of our best modern education programs, the conditioning of the child's environment from babyhood to adolescence, with respect to food, clothing, housing, fresh air, baths, exercise and rest, must be considered his elementary rights. But the development of standards with respect to these things in relation to the child's health should be by the best scientific and educational authorities.

* * * * * * *

Equally important, and interrelated with the physical needs, are the emotional needs of childhood, such as the need for wise love and understanding, for protection against such psychic blights as fear, and the abuse of primitive emotions such as anger. Only thus may we have a race of children free in spirit and strong enough to carry on the highest ideals of our civilization. Such education for constructive freedom necessitates homes and schools flooded with fresh air and sunlight, with ample play space, with serene and well qualified parents and teachers.

* * * * * * *

Just as the modern science of horticulture aims to produce the widest possible variety of beautiful types, so the science of health development of children should aim to free them from the hampering impediments to anything that would enable each child to blossom in the infinite variety which is characteristic of life.

—Herbert Hoover.

* * * * * * *

Our work is racial defense. If we want this civilization to march forward toward higher economic standards, to moral and spiritual ideals, it will march only on the feet of healthy children. The breeding ground of the gangster is the over-crowded tenement and subnormal childhood. The antidotes are light and air, food and organized play.

* * * * * * *

Through praise, rather than scolding, through happiness rather than failure, the child acquires an elementary optimistic philosophy of life. He acquires also a sense of value and a sense of security which are very important for his health of mind.

—Arnold Gesell, M.D.

REPORT OF DIVISION OF FOOD AND DRUGS.

DURING the months of April, May and June, 1926, samples were collected in 162 cities and towns.

There were 2,049 samples of milk examined, of which 514 were below standard, 32 samples had the cream removed, 31 samples contained added water, and 1 sample was skimmed milk above the legal standard.

There were 494 samples of food examined, of which 89 were adulterated. These consisted of 6 samples of canned goods labeled as containing 40% sugar, and contained but from 16.4% to 20% sugar; 5 samples of clams which were watered; 27 samples of cream which were below the legal standard; 12 samples of maple sugar adulterated with cane sugar other than maple; 14 samples of maple syrup which contained cane sugar; 11 samples of hamburg steak, and 2 samples of sausage, all of which contained a compound of sulphur dioxide and were not properly labeled; 1 sample of sausage which was decomposed;

7 samples sold as butter which proved to be oleomargarine, 4 of which contained dye; 1 sample of milk cocoa made with skimmed milk instead of whole milk; 2 samples of soft drinks, 1 containing copper, and the other containing a compound of benzoic acid; and 1 sample, a substance found in a milk bottle, which proved to be lime and dirt.

There were 34 samples of drugs examined, of which 3 were adulterated. These consisted of 3 samples of spirit of nitrous ether, all of which were deficient in the active ingredient.

The police departments submitted 2,108 samples of liquor for examination, 2,081 of which were above 0.5% in alcohol. The police departments also submitted 20 samples of poisons for examination, 6 of which were morphine, 1 copper, 1 cocaine, 2 medicines, 1 denatured alcohol, 1 illegal drug, and 8 samples were examined for poison with negative results.

There were 28 hearings held pertaining to violations of the Food and Drug Laws.

There were 44 convictions for violations of the law, $755.00 in fines being imposed.

Joseph Marshall of Acushnet; Karl Zander of Stow; Charles Gill, Charles Hanos, Claude E. Shannon, and Andrew Sinisalo, all of Amesbury; John Bourgault of Winchendon; Theodore Buyakles of Holyoke; Carlos Chaves of Westport; George Chigos of Springfield; Samuel Deros of Woburn; Ruben Diamond of Medford; Orville Dinsmore of Berlin; and Charles Theodore of Palmer; were all convicted for violations of the milk laws.

John Karafotis, John J. Panacy, and Brailey Creamery, Incorporated, all of Brockton; Waldorf System, Incorporated, of New Bedford; Angel Colocousis and John Kyriax of Haverhill; Anthony Economidy, Samuel Lampros, Konstantine Arvanitis, and Thomas A. Fitzgerald, all of Springfield; William H. Phinney of North Adams; Anthony J. Thompson of Quincy; William P. Ludden and Charles Schick of Holyoke; and Basil J. Panis, 2 cases, and James D. Phillips, both of Cambridge, were all convicted for selling cream below the legal standard. Angel Colocousis of Haverhill, and Konstantine Arvanitis of Springfield, both appealed their cases.

Karl Zander of Stow was convicted for the misuse of milk bottles.

Isadore Oxman, Joseph Weinberg, Samuel Tallent, and T. Jacob Weinberg, all of Springfield; Theodore Shapiro of Haverhill; Abraham Lavine of Everett; and George Gauvremont, 3 cases, of Central Falls, Rhode Island, were all convicted for violations of the food laws.

George Gauvremont, 2 cases, of Central Falls, Rhode Island, was convicted for misbranding food.

Essex Drug Company of Boston was convicted for violation of the drug laws.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 8 samples, by Fred M. Baldwin of Charlton Depot; and 2 samples each, by Joaquin Chaves of North Westport, Orville Dinsmore of Berlin, and Paul Songer of East Walpole.

Cream which was low in fat was obtained as follows: 1 sample each, from Draper Restaurant, and The Royal Chinese and American Restaurant, both of Northampton; and Charles Schick, Hotel Columbia, Holyoke.

Maple Sugar adulterated with cane sugar other than maple was obtained as follows:

3 samples, from Maple Products Association of Eastern Townships

Incorporated of Quebec; and 1 sample, from J. Ernest Houle of Manchester, New Hampshire.

Maple Syrup which contained cane sugar was obtained as follows:

2 samples, from Maple Products Association of Eastern Townships Incorporated of Quebec; and 1 sample, from George Gauvremont of Central Falls, Rhode Island.

Six samples of canned goods labeled as containing 40% sugar, and contained but from 16.4% to 20% sugar, were obtained from Godfrey Packing Company of Benton Harbor, Michigan.

One sample of milk cocoa made with skimmed milk instead of whole milk was obtained from Parker Coffee Company of Boston.

One sample of soft drink which contained a compound of benzoic acid was obtained from Louis Levine of Springfield.

One sample of sausage which contained a compound of sulphur dioxide not properly labeled was obtained from Price Beef Company of Boston.

One sample of sausage which was decomposed was obtained from National Meat Company Incorporated of Haverhill.

Hamburg Steak which contained a compound of sulphur dioxide not properly labeled, was obtained as follows:

2 samples, from Wilfred H. Maloney and Arthur C. Parent, of Bradford.

1 sample each, from Morris Oxman, Joseph Weinberg, T. J. Weinberg & Son, M. Weinberg, and Samuel Tallent, all of Springfield; Peoples Market of Fitchburg; Everett Square Provision Company, and Abraham Levine, both of Everett; and Kravitz Beef Company of Boston.

There were six confiscations, consisting of 400 pounds of dried out calves' heads, 280 pounds of decomposed sweet breads, 60 pounds of tainted chickens, 150 pounds of decomposed ducks, and 10 pounds of tainted turkeys.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of March, 1926:— 431,200 dozens of case eggs, 315,917 pounds of broken out eggs, 415,784 pounds of butter, 746,899 pounds of poultry, 2,419,184 pounds of fresh meat and fresh meat products, and 923,894 pounds of fresh food fish.

There was on hand April 1, 1926:—331,830 dozens of case eggs, 775,642 pounds of broken out eggs, 2,619,634 pounds of butter, 4,448,317 pounds of poultry, 9,742,685 pounds of fresh meat and fresh meat products, and 2,657,978 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of April, 1926:— 3,491,040 dozens of case eggs, 572,626 pounds of broken out eggs, 750,514 pounds of butter, 697,089 pounds of poultry, 2,413,515 pounds of fresh meat and fresh meat products, and 2,665,690 pounds of fresh food fish.

There was on hand May 1, 1926:— 3,327,150 dozens of case eggs, 895,538 pounds of broken out eggs, 1,730,184 pounds of butter, 3,547,516 pounds of poultry, 9,711,322 pounds of fresh meat and fresh meat products, and 3,746,165 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of May, 1926:— 4,921,170 dozens of case eggs, 417,331 pounds of broken out eggs, 1,484,222 pounds of butter, 868,595 pounds of poultry, 4,153,665 pounds of fresh meat and fresh meat products, and 4,531,998 pounds of fresh food fish.

There was on hand June 1, 1926:— 7,581,450 dozens of case eggs, 987,563 pounds of broken out eggs, 2,208,854 pounds of butter, 3,085,948 pounds of poultry, 9,399,901 pounds of fresh meat and fresh meat products, and 7,320,219 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, George H. Bigelow, M.D.

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The North Midland District	———————
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The Berkshire District	Leland M. French, M.D., Pittsfield.

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Health Education

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

GEORGE H. BIGELOW, M.D., COMMISSIONER

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HEALTH EDUCATION
HOW CAN IT BE MORE UNIVERSALLY ESTABLISHED?

By Emma Dolfinger, American Child Health Association, New York, N. Y.

Health Education sweeps up in its wide arms all the children. Then it reaches out and includes their guardians, — their parents and teachers; and, finally, it gathers to itself the trainers of those guardians in the normal schools and colleges. The normal schools, therefore, from the point of view of the common health, are the crucial points in the development of that constructive health behavior to which we look for the solution of our health hazards and handicaps.

Because the normal schools are professional schools, concerned with developing specific skills, the health instruction which goes on there must be adapted to the obligations and opportunities of such schools. Four factors are involved. These four factors are:

1. Personal Health Development.
2. The Demonstration School.
3. The Professional Courses.
4. The Co-ordinating Machinery.

1. Personal Health Development.

In their fundamentals, the health services and the health knowledge required for personal development are the same for all students; but a word about the health service is important.

Most medical examinations given to teachers, or student-teachers, seem aimed at discovering only certain major defects or infections. Student-teachers' examinations should search out, in addition, characteristics likely to interfere with full physical vigor and spiritual poise under the strain of teaching, as well as characteristics of appearance, manner, speech, function, which should not be possessed by a person who is daily the model for many children. The examinations should be the basis of corrections and machinery should be provided to make possible the improvements suggested. Where correction is not possible, the student-teacher should be diverted into another profession.

2. The Demonstration School.

The heart of an effective teacher-training program, however, is its Demonstration School.

Student-teachers can get no real understanding of the school health program until they can see it in action, — not just for one "observation" lesson, but every time they are in the school. They should see its correlations, its ramifications, its influences,— in the halls and lunch rooms, on the playground, in the policy with parents, in the classroom routine, in the building management, in the work of doctor, nurse, special teacher, in the management of children by themselves or by their teachers.

A good school health program is based upon certain biological principles which underlie the growth and development of children. These principles are so important to the understanding of the normal school's health instruction course, that they can well be re-stated.

Dr. Jennings, of Johns Hopkins, says that contributing to the final child-product are heredity, growth and development. He says that the rules and conditions of development may be stated thus:

(1) Rules of Development:
  - *a.* The gradual, spontaneous development of the child's powers.
  - *b.* Growing and developing should proceed healthily and steadily.
  - *c.* Organic attention can be given to but one phase of growth at a time. (Pain, fear, etc., hamper growth.)

(2) Conditions for Development:
Provision of:
  - *a.* Protection from blights, as infections and defects.
  - *b.* Proper nutrition — requiring not food only, but measures to bring about free and full development of all capabilities.
  - *c.* Proper external conditions. (Temperature; ventilation; sunlight.)
  - *d.* Exercise of powers providing for both
    1. Adaptive powers (mental).
    2. Physical powers.

In providing for exercise of the powers, we should not overlook the importance of:
  - *a.* Proper balance between quiescence and activity.
  - *b.* Appetite for work by organism (interest); and
  - *c.* Relief from too long concentrated attention.

Play provides for all three of these items.

The demonstration school program which the student-teacher observes with profit will be grounded in these principles, and the health work of the school will be checked against them.

In such a school, the student-teacher will learn by the study of a good teacher's method, noting that with such a teacher health education is her policy, as well as part of her daily program, and that the procedures leading to health development of the children are never put aside, even for the standard "tests." The normal student will be quick to see the pupils of such a teacher acquiring from her by unconscious imitation good habits and attitudes, — mental and social, as well as physical.

Students will grasp the meaning of correlated teaching and co-ordinated activities through contact with the processes themselves.

If the normal school has a nursery school in addition to the elementary school, the student-teachers are indeed fortunate, since they then have the richest possible opportunity for genuine child study.

In addition to observation, participation in the program will be provided for the student-teacher at as many points as possible. Observation and participation, to be worth while, will be planned in advance and followed by discussion to interpret what has been seen.

Such schools and their complete use are the indispensable, characteristic, distinguishing features of the teacher-training school as distinguished from the college.

3. The Professional Course.

The basic professional course or courses in the teacher-training health education program should be determined by analysis of the health aims of the teacher in the elementary school. The courses will differ markedly in composition from the college course in similar fields, since the criterion of the good normal school course is not logical thoroughness and completeness, but perfection of adaptation to its ends.

Be it remembered, that the touchstone for right choice of material from the above fields is always the set of biological principles referred to as being the final test of the health value of any school program in whole or in part. When confronted with the question: *How much,* or *what facts* in chemistry, physics, bacteriology, biology, etc., to include in the teacher's course at any period in her professional training, the answer lies in another question: What is the least the teacher must know to fit her present practices and teaching to the rules and conditions of child development? This, not the science teacher's pride in his subject, should determine the content of the teacher-training course.

We must be prepared to grade our teacher-training courses as we grade our school health work. In this little first-grade child just beginning his training, we inculcate habits. We say: "Do this." We show how to do it. So with the beginning teacher. When we absolutely must train immature young people in all too brief a period, the professional Health Education course should also say: "Do this." "Do it this way." "Get these results." "Look at these older teachers." "This is what to do." "This is how."

Though this rote teaching may be smug and self-complacent, it can be inspiring, and these young teachers, with success, will grow in enthusiasm and in desire for knowledge, and will return in thousands to the normal schools, the summer schools, the extension courses, the colleges, the university, clamoring for the next steps, the "whys," the "history," the supplementary enriching knowledge.

It is important that we should realize the need, the limitations, and the remedies for these brief courses; otherwise, there is danger that they will be accepted as the permanent type of health education courses by normal school administrators, to the permanent damage of sound health teaching.

Such brief courses are much cheaper than the well-balanced group of fundamental science, special technical, and educational courses. May I illustrate by a housewife's plaint to her butcher: "It's tough to pay fifty cents a pound for meat!" And his reply: "Yes, but it would be tougher if you only paid twenty-five cents a pound." Every person interested in public education should help to make people recognize that "twenty-five cent" courses are only makeshifts.

But, nevertheless, the normal school is the key to successful democracy, since it is also the key to better public education.

It should be supported, if necessary, at the expense of other education, since the strength of all other education derives from the effectiveness of the work of the elementary school-teacher.

The health program in our normal schools is in a wide sense basic to the entire public health program. Therefore, the public's share in its development is to understand it, to support it, to investigate it in each locality, and to strive to help it secure the four-fold perfection of health services (reflected in vigorous, all-round efficiency of graduates), well-planned practical science courses, a model demonstration school, showing how to conserve, promote and protect the health of its pupils with, finally, all these factors consciously co-ordinated by a sympathetic administration.

THE RELATIVE IMPORTANCE OF EARLIER AND LATER HEALTH TEACHING.

BY J. MACE ANDRESS, LECTURER ON HEALTH EDUCATION BOSTON UNIVERSITY AND BOSTON SCHOOL OF PHYSICAL EDUCATION.

In considering any education problem there are at least three outstanding questions of importance that must be settled; namely, (1) What is to be taught? (2) At what periods of mental development are different aspects of the subject to be taught? and (3) How is it to be taught? This brief paper must necessarily consider the second of these questions.

In health education the fundamental objective is that of bringing the right influences to bear upon the individual so that he may be a healthy individual—one who is physically and mentally equipped to face the issues of life successfully. The study of the physical and mental disabilities of adolescence and middle and later age have thrown a flood of light upon the question as to when instruction in health should begin. Such studies show that most of these disabilities had their beginning in an earlier period. Some of the disabilities of later life, for example, go back to the pre-school period. Evidence which is collecting rapidly indicates the very great need of early health teaching.

How early shall health teaching begin? The first health teaching should begin with the mother before the child is born. If a human being is to start without handicaps the education of the mother is necessary. One of the most striking examples of the need of this is shown in connection with the teeth. Recent investigation has shown that the first set of teeth is determined almost entirely by the kind of food which the mother eats during the period of pregnancy. If the mother has a well balanced diet in which eggs, dairy products, fruits and vegetables are bountifully supplied the first set of teeth is likely to be sound. This is well shown in the case of some of the immigrant families in which the children born abroad have almost no decayed teeth. The children of the same families born in America often start life with defective teeth because their mothers have been living on a deficient diet. The importance of this prenatal period is so great that many state and local departments of health are getting out special circulars and furnishing lecturers on the subject of the health of the expectant mother.

The health education of children begins as soon as they are born. One of the remarkable things about the nature of the little child is the plasticity of the nervous system. It is like a very intricate machine that may have thousands of possible electrical connections. When the child cries and somebody picks him up and rubs his back there is a certain satisfaction that follows which helps to make a connection in his nervous system. If this continues for some time we say a habit is formed. Sometimes these habits are so vicious that a child becomes a nervous child and a serious problem in the household. Some children soon learn even before they can walk that crying and tantrums are a means of controlling their environment. If no attention is paid to such dangerous exhibitions and satisfaction follows after they do the desirable things good habits will be formed. It is during this pre-school period that children form likes and dislikes toward their food. Often children fuss about their food to get attention. The importance of right food habits is of tremendous importance. As the first set of teeth is dependent on the food of the mother before the birth of the child so the second set of teeth is dependent on the kind of food which children have during the first few years of life.

The question of sound teeth is therefore decided largely before the child starts for school. Brushing the teeth probably is apparently far less important than we have imagined. Proper nutrition is more important.

The pre-school period is most difficult to reach because children of that age do not ordinarily come under the supervision of any educational institution. The first chance to take an inventory is when all children start for school. One of the most recent developments in this field of health education is the pre-school clinic. These are carried on by local boards of health or the health department of school systems. In the early summer parents of children who are likely to enter in the fall are notified of the advantages of getting their children ready for school entrance. The response on the part of parents to this appeal has been most generous in places where this plan has been tried out. In such clinics they discover cases of malnutrition, diseased tonsils and adenoids, defective vision, bad teeth, faulty health habits, etc. The work of such clinics enlists the effort of both parents and children so that many of them start school in the fall with a clean slate. In many school systems there is now a thorough physical examination of pupils at school entrance. At such examinations it is desirable to have one of the parents, school physician, school nurse and teacher present. Such an examination tends to insure the hearty co-operation of those who are chiefly concerned with the health of the child. Many physical handicaps can then be removed that would greatly interfere with school progress if they were not discovered until later. It also enables the teacher to safeguard the child's health because she knows his special needs. Her health teaching may be made much more effective because she can teach individual children what they need most.

The value of frequent physical examinations of children throughout their school life cannot be over-estimated. The body is a remarkable intricate machine, much more complex and sensitive than a watch or an automobile, yet most people expect to have their watches and automobiles looked over by an expert occasionally. Frequent physical examinations would prevent many physical handicaps. The examination of the men who were called upon to serve as soldiers in the World War in America showed that one third of them were physically unable to bear arms. In the opinion of experts competent to judge, many of these defects could have been prevented by proper physical examinations and good health teaching during school life.

In no department of school work has there been a more marked revolution than in health teaching. The old teaching confined to dry physiology and anatomy (sometimes referred to as the "bone age") has given way to the inculcation of health habits and wholesome mental attitudes. Health administrators and teachers have awakened to the fact that children may be taught to eat the right food with little or no knowledge of the processes of digestion. How important it is that these health habits should be inculcated early. As soon as the child enters school he should be trained in right food habits, sleeping with the windows open, drinking plenty of water, going to bed early, etc. Since the use of dairy products is recognized by health experts as being one of the fundamentals of individual and national power it is much more essential that some children should learn to drink milk than to solve problems in arithmetic. Such habits should be started in the home but schools find it necessary to co-operate with the best homes in the health training of children.

The early detection and correction of physical defects and early health training should be watchwords then in health education. Such principles if applied scientifically and in such a way as to compel human interest should result in a marked improvement in mental and physical efficiency in our schools and contribute much to our national welfare.

WHAT THE PRACTISING PHYSICIAN THINKS OF HEALTH EDUCATION.

By Ayres Phillip Merrill, M.D., Pittsfield, Massachusetts.

Ninety-two physicians, mostly so called "general practitioners" of medicine, were asked the following very broad and formidable question, — "What is your reaction to the efforts of the State Department of Health, and associated agencies, in educating the public in health matters?" Most encouraging was the unanimity of those interviewed in feeling that much good is being accomplished, and that more will be accomplished as the work is better systematized and more concentrated on the rising generation. Most human was the manner in which nearly all of those interviewed so promptly registered a "kick"; and then, after thinking the matter over and discussing various angles of the subject, gave the excellent, constructive criticism that such a group might justly be expected to give. It is interesting that fully 90% of the "kicks" were against members of our own profession, about 3% against the nurses who are assisting in this work, and the balance against the associated organizations that fail properly to co-operate with one another.

It was very generally agreed that the greatest good is being accomplished through the schools and the clinics. About half of these physicians felt that there should be greater uniformity about vaccination, and especially that physicians should discontinue giving wholesale excuses against vaccinating school children, as this habit hurts both the public and the physicians. It is a sad commentary on our profession that a child may obtain such a certificate without being examined, — often not seen, — by the physician writing the excuse. Nearly all of them feel that the reaction of the public to the Schick test and the toxin-antitoxin injections is improving rapidly, and that this work should be continued. Nearly all of those interviewed feel that the most important and valuable health lesson is given at the time of the physical examination of the school children, and greatly deplore the superficiality of those examinations, especially in the earlier years of school. Such examinations each year develop an excellent habit in the child, and in many cases the parents say that if such physical examinations are valuable for the child perhaps they might be worth while for themselves, and they try the experiment. Right here is where we fall down, in not meeting them half way in that first experiment, and we should better prepare ourselves for that work.

These physical examinations of the children reveal many remediable defects, which, if not corrected early, might necessitate many extra months of schooling to accomplish the same work. In one city it was found that 68% of the children taking the same work a second time were handicapped by one or more remediable physical defects causing such an economic loss as to make it good business to discover those defects early and have them corrected. Most of those interviewed feel that the examination in the first year at school should be made most complete, there being little if any objection from child or parent at that time, such as develops in later years in many cases. The record then made should follow the child through school, having such additions as conditions warrant, and should be given to the child at the end of school. Such a record would be valuable in many ways, and would tempt many of them to continue the examinations later.

Many made the comment that the follow-up work, for those children who are found to have remediable defects, is one of the most valuable parts of the work. The nurse's going to the parents and explaining the reports, explaining the value of promptly calling the attention of their family physician to the defects and asking him to correct them, and keeping at the matter until the defects are corrected, gives her, if she is properly trained, a wonderful opportunity to teach health to child and parent; and this is where we often fail, in not co-operating with the school physicians. Though the defect may be a minor one, and though it may have been discovered by some one else, let us think of the child and do all we can to improve conditions and drive home a health lesson to child and family.

The clinics maintained by the Department of Health and by many charitable organizations scattered about the State, are doing a very valuable work in spreading the gospel of health. Next to the work in the schools, probably this method best reaches those who most need the help. Truly many persons impose on these clinics, persons who can afford to pay their family physicians for more detailed treatment, and who should not be allowed to crowd from the free clinics those who need and deserve such free treatment; but many agree that these same persons employ their family physician more often, and stimulate others to do likewise, because of the lessons learned at the clinics. A few suggested that more placards stating health aphorisms should be posted in the waiting rooms at the clinics.

Where there are so many organizations endeavoring to spread the gospel of health it is almost impossible to prevent some overlapping of effort. Such overlapping decreases efficiency and works hardship in a few instances, but several of those interviewed referred to the multiplicity of effort as being valuable, as shown in the fight against tuberculosis. Is it in spite of, or because of, this overlapping of effort that so much has been accomplished in the fight against tuberculosis? It is felt that the sanatoria for the treatment of tuberculous patients are very valuable object lessons, as the instruction given to the patients is often passed along to family and friends at home, several instances being cited.

Of all the physicians interviewed, only five felt sure that the health lectures sent through the air are of value, although a very few more were in some doubt on the subject; but nearly all of them feel that one of the most valuable methods of spreading the gospel is by means of the public press. They told of many instances where patients of theirs watch for all such articles and absorb them with a relish. There is a strong feeling that something should be done to purge the public press from the fake health advertisements, and many feel that it is quite disgraceful to publish a good health lecture in one column while such advertisements appear in adjoining columns on the same page. Advertising must prove of great value to induce the purveyors of fake remedies to purchase so much space in such papers as will accept their copy. They evidently have proved that the public read such copy, and we might well profit by their experience. Let us not quarrel with them, but supply better copy. If we but tell in attractive readable form what has been and is being accomplished by the medical profession, we may win and hold the attention of the reading public, for no greater marvels have been accomplished than those in medicine and surgery.

A large majority of those interviewed feel that the usual lecture on health topics, as given before clubs and under the auspices of various organizations, fails to reach the people who are most in need of such instruction. Many such lectures might be summarized and printed in the newspapers, where they would be read by at least a few of the people who would profit by them. Several feel that the health demonstrations, such as given by the so called "Health Clowns" in the schools, have accomplished considerable good. There was almost unanimous feeling that lectures, demonstrations, and special training adapted to the needs of nurses and social workers, would be a great stimulation to them, and would improve the messages taken by them to the homes they visit. The short reel moving picture would supplement these methods, and a few suggested arranging with the moving picture theatres frequently to use a short reel demonstrating some health idea.

The laboratories maintained by the Department of Health were frequently spoken of as reliable aids in diagnosis, sources of supplies, and valuable object lessons to those who have occasion to follow their work.

Conclusions.

Conclusions to be drawn from the answers to my question are in the order of their importance: The most valuable work is being done and should be continued, among school children; the work of the nurse in following up the discoveries of the school physicians is very valuable; more co-operation among the excellent independent organizations would be helpful; broadcasting of health lectures is of slight value; more and better articles in the newspapers and magazines is the best method of reaching the adult; continue the clinics, especially those for diagnosis only, and the sanatoria; and, of as great value as anything, the teaching of the physicians to appreciate the changed conditions and to prepare themselves more fully to co-operate in this work.

METHODS OF TEACHING HEALTH.

By Georgie B. Collins, Director of Health Education, Malden, Mass.

"You can lead a horse to water, but you cannot make him drink," — so says the old adage. It fails to add, however, that if the water is good and the horse is thirsty, he is likely to drink anyhow. In leading children to the fountain of health, let us make the situation as ideal as possible, — take them to the fountain when they are thirsty, and be sure that its waters are so attractive that they will drink spontaneously and abundantly.

It is obvious that the methods employed in teaching health must be different than those used in most other subjects, because the important thing is what the child *feels* and *does* in regard to his health, not what he *knows*. It is simple enough to teach children that they ought to go to bed at eight o'clock, but it is quite a different matter to get them to do it. Let us consider here what general methods are most effective in motivating children to better health habits.

Find out as much as possible about the health and habits of your children at the present time. From the physical record card with the report of the doctor and nurse, from the eye and ear tests, from the weighing and measuring, you get certain definite data about each child. A careful inspection and observation of your class will tell you something in regard to cleanliness, care of the teeth, biting of fingernails, sitting and standing posture, putting things into the mouth, proper clothing, and proper use of the handkerchief. You can get additional information about the child's habits by use of a questionnaire, which is specific, — "What time did you go to bed *last night*?" rather than "What is your *usual* bedtime?" If there is doubt of honesty in a class, make the answering of the questionnaire optional, or omit the writing of names on the papers. The questionnaire cannot be used with very small children, and the teacher should find out through class discussions and by individual questioning what the habits of her children are.

This careful summarizing of the situation at the start is well worth the time it takes. It enables a teacher to see what are the outstanding needs of her group, and what are the peculiar difficulties of individual children.

Enlist the child's interest and conscious effort in behalf of his own health. Weighing and measuring is the best single teaching device in the health program because children are instinctively interested in their growth and development. Let your pupils take an active part in weighing and measuring; take time to have them know how much they have gained during the summer vacation or during the past year; interest them in knowing whether they have gained as much as the average for their age, whether they are up to weight, etc. By every device possible, relate the question of growth and gain to the daily program of living.

The measurement of chest expansion is another means of enlisting the child's interest in his own development. A tape is the only equipment needed, and measurements can be quickly made. There is no value for the child, however, unless he understands that food, exercise, sleep, posture, and fresh air are directly related to the development of his chest capacity.

Build the health teaching upon the life situation. We want to teach in school habits which will function outside of school. Such habits must seem vital to the child, and all teaching in regard to them must apply directly to the child's present day life. After inspecting the teeth in a class of small children, the campaign for tooth brushing may be started somewhat as follows. Arouse interest in buying new toothbrushes, and ask the children to bring their brushes to school on a certain day, wrapped carefully in clean paper or envelopes. Stage a demonstration of tooth brushing, using as leaders the children with clean teeth. Let various children examine each other's teeth. Let each child look at his own teeth in a mirror. Make each child feel that it is a "big thing" to own a toothbrush and use it regularly, and appeal to him to start brushing his teeth *right now*.

Launch a habit well, and strive for constant repetition until the habit is established. In order to initiate new habits, or substitute good habits for bad ones, vigorous effort is required. James says, "Launch yourself well on a new habit." Once launched, the habit must be subjected to constant repetitions until it becomes automatic. To establish a habit with a child is no small task, and it requires all the resourcefulness of a capable teacher.

One of the best methods of securing repetitions is by use of the health habit record, where a child accepts the responsibility for recording day by day his performance of certain habits. He may use a specially prepared record, or make one for himself on school paper. The teacher must sustain the child's interest, lest the record be dropped after the first few days. She must set high standards of honesty. Probably awards should not be offered for record keeping, because they tempt the child to be dishonest.

Daily inspection helps to establish habits which can be definitely observed, — biting of fingernails, brushing teeth, etc. Variety should be introduced for the sake of interest; such devices as records on the blackboard, individual records on cards, or notebooks, and honor rolls for those who reach a high standard, are valuable in connection with inspections. The children should take an active part in making the inspection. In lower grades, a "father" or "mother" may be the inspector. In upper grades, the class may be organized in a health club with teams and captains. Unless children enjoy inspections and take an active interest, there is little or no permanent effect upon their habits.

Try to avoid a lapse from a habit, once it has been started. The questionnaire may be used in various ways to give fresh stimulus to daily habits. Pupils themselves may suggest the questions and score their own answers. Arouse their interest to watch carefully those specific habits which appear to be neglected.

A variety of score sheets may be used to good advantage if they are made alive by the introduction of the personal element. Any simple device which adds interest for the child will increase the value of the score sheet. For example, when children are scoring themselves on daily food habits, much zest may be added by colored drawing of the various foods used.

All the health teaching activities which appeal to the child's natural interests serve to center attention on the habits involved. Hence, the value of dramatics, competitions, posters, scrapbooks, sand table set-ups, stories, rhymes, etc.

Use the positive approach. Lead the child to "Do" something, rather than to "Don't Do" something. Keep before him the ideal of strength, beauty, efficiency, happiness, success; avoid stressing the dangers of disease and failure. A boy finds it worth while to sit well at school when he believes that good posture will help to make him fit for athletics. A girl is interested in her posture, too, when she thinks that it is an important asset to her good looks and smart appearance. Any child, however, gets weary ad nauseam of being told to "sit up or he'll be round shouldered!"

Be specific. It is usually the rifle, not the shotgun, which brings down the game. In teaching health, there is some tendency to do this, that, and the other in the belief that by some magic process the child's habits will be influenced. It is just as necessary to attack specific problems in health as in other subjects. You may find from the first survey of your class that any number of things need attention. You cannot strike everything at once. Single out a certain few things which seem most important, and center interest upon them until you feel that some gain is being made. Then attack a new point, never in the meantime allowing interest to wane in regard to the habits already begun.

Provide satisfactions for success in habit formation, and provide means for measuring progress. Experiments with reading and spelling have shown that children who are made aware of their progress advance more rapidly. Give the child every opportunity to measure his progress through gain in weight and height, improved appearance, increased athletic ability, better teeth, cleaner hands and nails, etc. Enlist the group spirit, which is a powerful incentive at any age, and which provides natural satisfactions for the child's success in health. The child should be led to depend upon those satisfactions which are lasting, and not merely upon the teacher's approval which will later be removed. Some teachers coax children as a man may tempt a donkey with a handful of hay. The donkey moves for the moment, but his nature remains unchanged. Unless the child feels his responsibility to himself and his social group, his habits will not be permanently affected.

Make use of situations as they occur to teach health. Often a very definite need for advice appears, — a boy with toothache, a hand with a bad cut, a child who goes to sleep in school because he stayed up so late last night. These are opportune moments to turn the negative situation into a positive lesson.

In other subjects of the classroom, material presents itself which is valuable from the standpoint of health, — climatic conditions, customs of people, foodstuffs, etc., in geography; modes of life at different times and ages in history.

All such incidental teaching is extremely valuable because it ties up the matter of health with the child's other life interests, but such teaching cannot be relied upon to give the child his entire training in health.

In all health teaching, be guided by the child's natural interests and tendencies. The child likes to be active, he likes to express himself in a way which brings satisfaction, he values a position in his own social group, he likes to construct, he enjoys the prestige of responsibilities, he wants to succeed. Health activities must be built upon these interests and tendencies if they are to have a dynamic effect upon the child's behavior.

Let upper grade children accept responsibility for the promotion of certain health habits. For example, let them try to eliminate the habit of eating candy at recess. They can prepare four-minute speeches as part of their oral language work, and present these in other classrooms; they can make posters to stimulate the substitution of fruit or milk for the candy habit; they can constitute themselves a "committee of the whole" to throw their influence on the side of healthful eating.

Dramatics have a powerful influence in the health program. Most important are the plays which children write for themselves as part of their classroom work, and present in simple form to other classes. It is *their* work, and it has a vital appeal which no ready-made production can have.

All kinds of constructive activities are valuable. It is impossible to go into detail here; indeed, so much has been done with stories, rhymes, scrapbooks, posters, sand table set-ups, playhouses, etc., that detail is not necessary. The one thing to be kept in mind is that the importance of the project is not the elaboration of the device, but the part which the child plays in it, and the interpretation of the whole things in his own life.

Methods in health teaching are more varied than the famous "Fifty-Seven." Let us be careful not to make a fetich of device or method. Excellent health development may be carried on with very little employment of elaborate devices. On the other hand, very little health development sometimes accompanies the most pretentious projects. The method is no end in itself; it is only a means to an end, which is a better quality of living for the child.

GRAPHIC METHODS OF TEACHING HEALTH.

By Frances Klein, S. B., Formerly Assistant Editor Massachusetts Department of Public Health.

Three factors enter into Teaching: first, the person or persons we are teaching; second, the facts we wish to present; and third, the method of presenting these facts. It is impossible to talk intelligently of methods without a clear understanding of our persons and our facts. The chief difficulty in health teaching is that we expect to take a miscellaneous group of people — of all ages, of all degrees of understanding — and give them a quantity of unclassified information. In this respect alone does health teaching differ from teaching other subjects. For although there are excellent systems for introducing this subject in a few schools, it is largely left out of the curriculum in the majority of schools. Early home training, which should be the background for health teaching and should make it an easier and swifter process, is sometimes lacking or is of the kind which makes it necessary to "undo" before "doing." Prejudices, particularly of religious origin, and superstitions, particularly of the less intelligent foreign group, must also be handled with care and tact.

WHO?

The Persons.

Granting that there is a growing organization of health teaching in the schools today we still have the tremendous body of adults who went to school before there was any such thing as health education. Now on the whole it is better to bend our efforts to teaching the child, the future mother or father, who is in the growing stage, will learn quickly, will listen sympathetically. But we cannot leave out today's mothers and fathers and law-makers, and financial powers. They have the care of the infant from before birth through the all-important pre-school years; they are the home influence, the environment, the laboratory where the child puts his lessons into practice; they have the power to make laws for better or worse, to appropriate money to make the wheels go round. Let it not be implied that they are unsympathetic. They are perhaps slow about breaking down customs of long standing, cautious about taking up new ideas. But this is as it should be. They want to know the facts, and if these facts can stand cross-examination from every angle, our adults are ready to listen and to act.

Let us then sum up the first consideration — the persons. Who is to be taught health facts? Everyone. Why? Because a foundation must be laid in the home, because there is not yet a rational organization in the schools and because the child cannot live according to what he learns without the co-operation of his parents. How? By intelligent appeal to each particular group, not all together, but one at a time, meeting that group on familiar ground and talking its own language.

WHAT?

THE FACTS.

Now as to what we shall teach — the facts. It will take time to work out standards for the different grades and age groups. We cannot have as definite a scale as in a subject of long standing like arithmetic, which is classified into addition, division, long division, fractions, etc. Other articles in this issue will deal with our best efforts today. The point I wish to emphasize is the need of limiting our subject matter to one thing at a time, developing this single subject to its fullest extent, teaching it thoroughly, and then going on to the next subject. This is a quicker and more effective procedure than trying to tell all we know at once, and so missing out on everything. Remember to consider the person we are teaching, the fact that the idea is new to him, that he has to digest and comprehend each phase of it. Most important of all, the alleged facts must really be facts, absolute iron-clad truth. One bit of stretching the point for the effect can do a great deal of harm and undo a great deal of good. "Truthful" is not a synonym for "boring," as is sometimes supposed. The qualities which make a subject boring or interesting lie largely in the method of presentation and that brings us to our third and last factor in teaching.

HOW?

THE METHOD.

How are we to put our message across? What methods are most effective? The answer is — any method which is graphic, which tells its story clearly and vividly. It must be suitable for the group and for the facts we are teaching. General methods are never so effective as those planned and aimed specifically. In all cases the facts should be presented in a positive, wholesome, direct way, never disguised with a view to putting something over on our pupil. When he finds that we are putting something over on him, his faith in us and his belief in our teachings are at an end.

The child who is to be taken to the dentist must not be told that the dentist won't hurt a single bit; that if he goes this time he never will have to go again. This is not true. The dentist may hurt and the child should go again — at least once a year all through his life. The wise mother will not deceive her child; she can appeal to him by telling of straighter teeth, stronger body for playing games and for getting work later on, the big toothaches which the dentist will save him from and the fact that Jimmy next door was brave enough to go to the dentist without crying.

It is legitimate to emphasize the attractive points in our lesson. For instance, in teaching a little girl to wash her face all over, not just on the middle of each cheek and on the end of her chin, we can appeal to her vanity and emphasize the beauty in the results, leaving out the fact that she might get soap in her eyes.

Again, the particular method depends on the case. In the schools we have the prestige and personality of the room teacher, the special teacher, or the nurse. Her facts are authoritative. If, in addition, she is gifted with a love of children, an understanding of their reactions, she can teach her lesson attractively. Children like imaginative, fantastic things. Fairy stories, stories of heroes, stories of ordinary boys and girls, appeal to them. If they can be illustrated by pictures, the appeal is more than doubled. The teacher can tell the story and the children have a part in it by supplying the pictures, either as a drawing lesson on paper, or blackboard illustrations, or health exhibits around the room. As a special treat, lantern slides, delineascope films, or moving pictures can be shown. These are our most graphic methods of teaching.

Competition is valuable in teaching. This is one of the chief excuses for schoolrooms. Individuals by themselves often lack self-starters; in a group they advance with startling rapidity. Competition between rows in one classroom, or between several classrooms, or even between schools, for 100% health has aroused much interest in a number of communities. It means organization and a "social" spirit. The pupils have a row or class captain to check up on their accomplishments in health habit performance. They are all working for a goal, and woe to the youngster who holds back their progress! He is a social outcast.

All sorts of schemes can be planned to make a game of "performing" and record keeping. We have automobile races, health thermometers, health clocks, and so on. It means a picture, a colored picture if possible, and even better a picture which moves. This is graphic teaching — telling a story. How else can we tell it? By word of mouth, to be sure, or by print; but this is only the first step — the human being then acts it all out in his mind, draws a picture which might or might not be correct. Then it is time for the teacher to present it, by still pictures (posters), by three-dimension pictures (models or exhibits), and best of all by "moving pictures" (the play, the slide series or real movies). Now we have the story in black and white. Our audience can get excited about it. They can actually take part in it, as in the play, or in movies taken in their own community.

This leads us beyond methods for schools alone. Graphic teaching should not be limited to the child. It is our forte in adult teaching as well. We have groups of parents coming to the baby conference to learn about child care. We talk to them, show them by actual demonstration how to bathe and to dress the baby, models of the food which builds strong bones and teeth. There are colored posters around the walls to be studied by the parent awaiting her turn; not loads and loads of posters, with a confusion of printed matter, but a few pleasing posters, with the baby picture which appeals, the short, simple slogan which gives the message of baby care. At the end of the conference there is a "family" gathering, with a delineascope or moving picture film shown. The physician sums up a few important things to remember, and the mother will remember them for three reasons. First, they are about her baby, the baby she loves and will sacrifice for; second, the physician has talked with her and understands what she wants to know, not what he wants to tell her; and third, these facts are being pictured in an attractive way, in an unmistakably definite way.

Health literature can be graphic — *is* graphic, if told simply and illustrated. The Massachusetts Departments of Education and Public Health have recently prepared a lesson book for adult immigrants, in which there are twenty lessons, each divided into three chapters with an accompanying illustration. This gives the reader a chance to read a complete unit, study it leisurely, and then continue to the next lesson. It is a principle not limited to teaching of immigrants. Space helps a great deal. It gives the reader a sense of rest, a chance to look at one thing at a time. This is also true of posters; the poster with the generous margin, the single striking picture with its explanatory message, will make an impression. The exhibit of posters displayed with ample space between will carry; whereas a plastering of many equally good posters one beside the other, over, under, all around, will be merely confusing. The same applies to exhibits. Each exhibit should have a center of interest, one striking model, everything else subordinate and leading up to it, like the climax of a story for which all else is planned. Then, with a series of exhibit units, we must have space, lots of it.

WHERE

Can We Use Material?

Where, besides in the schoolroom, in the meeting, and in the conference can we use our graphic material? Anywhere that we can get an audience. In the newspaper for stories; in the store window, the dispensary waiting room, the station waiting room, the club, the library, the church parish house, for posters and exhibits; in the town hall and moving picture house for moving pictures. For each place we plan a particular exhibit. Women do most of the buying in the department store, and so an exhibit of baby clothes or bathing the baby would be suitable for such a location. The library has an atmosphere of its own; an exhibit on health practices in different lands, or on groups of foods containing a certain percentage of sugar or what-not would be in harmony with this atmosphere of research. The business men's club will probably be interested in reducing, in diet and recreation, in the dollars and cents value of various health measures.

SUMMARY.

All of which makes us conclude that there is a great big job for many individuals and organizations in preparing graphic health education material, — material which will be so pleasantly personal that each individual or group will cry "Eureka," in pure delight. To do this it must have, like all good speeches, a beginning, a climax, and an end; a beginning to awaken interest, a climax to excite and teach and convert the audience, and an end so that the audience can go home to sleep and think it over.

WHOSE JOB IS HEALTH EDUCATION?

By Merrill Champion, M.D., Director, Division of Hygiene
Massachusetts Department of Public Health.

When you come to think of it, the success of public health work of every kind depends upon health education. Even the abatement of nuisances is truly successful only if the offender and the public are educated to a higher standard for the future. In this sense, then, everyone engaged in public health work is to a greater or less extent a health educator. It is worth while to enumerate some of those who may with reason be included in the ranks of those teaching health. The health officer surely belongs there as does the public health nurse. The nutritionist, the dental hygienist, the physical educator, the health visitor, the visiting teacher, the right sort of social worker, the physician and the dentist, belong too, in the front rank if they can get away from obsessions engendered by previous exclusive attention to pathology. Then, of course, there is the school-teacher, general or special. Lastly, and potentially most important of all, there are the parents.

This makes a long list. It raises the question whether, with so many sharing the responsibility, failure is likely because of lack of concentration. This criticism would hold good if health education were strictly a matter of the conscious application of approved pedagogical principles. As a matter of fact, however, this is not so. The list of health habits that we can be reasonably sure of is relatively a short one. Probably at least some of the things we have stressed so confidently and dogmatically in the past have only a remote bearing upon health. Furthermore, most everyone knows a little at any rate about the really essential health habits. Most everyone could teach that little if he would by precept and example. And he would if these homely truths really meant something in his life. But knowledge as a foundation for accomplishment is not the same as accomplishment itself. We know but we don't do. Nevertheless, it is so hard really to drive into a human being's head anything which will favorably influence his usual habits of life that the combined efforts of the long list of persons enumerated above are needed if action is to be effective. Fortunately this is least true in the case of children, but even here constant repetition is the price of success.

In discussing, then, the question, "Whose Job is Health Education," we must bear in mind the practical aspects of the situation and not expect too much at present of any one group. Furthermore, the group which will accomplish most for health education in the future is not necessarily the one upon which we must rely at present. Few will dispute the statement that at present the agency upon which we must bear most heavily if we are to see results in teaching health is the public school. Yet by the time the child gets to school an appreciable part of his plastic period has gone by. If we are to hope for maximum results we must begin before the school age has been reached. But no adequate machinery has yet been developed to enable us to accomplish this.

The Place of the School.

Canvassing, therefore, the present situation, we must agree that the school offers us the best hope of promoting health habits among the children of today. The school serves as an avenue of approach for both public and private agencies with a health message. In some communities, at least, it has got to the point where the school has to consider seriously some method of fending off demands for time from outside agencies. The best answer to such demands will be given when the school itself does such a good job of health education as to render assistance from the outside largely unnecessary.

Granted that the school at present is our surest hope, upon whom in the school system are we to rely for the teaching of health? Must we develop a large corps of specialists to handle health habit promotion? I do not believe that this is necessary. Every teacher should, to a greater or less degree, be a teacher of health. The ordinary room teacher, trained as she is soon bound to be in the normal school in the principles of health teaching, is incomparably the one best fitted for the task. She will correlate all the subjects she teaches with the promotion of health. So, too, will the teacher of drawing, or manual training. The teacher of physical education, of course, is directly engaged in health teaching. All that will be needed in the way of specialists will be some one whose task it will be to keep the interest of the other teachers at white heat. In some places this may be the school nurse — especially when we have more school nurses who know something of the principles of teaching. Larger places will probably want a supervisor with training in health education.

What of the Future?

Are we, however, always going to be content with reaching the children as late as kindergarten or first grade age? I do not think we are. The health education of the future will begin with the baby's birth. And, moreover, even before the birth of the baby, the prospective mother will lay the foundation upon which may be reared the superstructure of good health. To accomplish this, the mothers and the fathers will have to be the teachers with the family physician, the family dentist, the health officer and the public health nurse playing the rôle of supervisor of health education. Only in this way can health habit promotion become a reality in the broadest sense of the word. The school-teacher will still remain one of the most important lines of defence of good health but she will no longer be the first line of defence. As a good teacher she will rejoice in this as a sign that parents have at last awakened to a sense of responsibility.

Summary.

All successful health work depends upon health education.

Health habit promotion must be begun at the earliest possible period of life and carried on by as many agencies as possible.

For the present, the public school serves as the most available agency for health education. In the school, dependence should be placed chiefly upon the room teacher who should have the assistance of specialists when needed.

For the future, the responsibility for health habit promotion must rest primarily upon the parents, aided by specialists in the persons of the family physician, family dentist, health officer, public health nurse. The school with its teachers and medical and nursing staff, will remain the most important single adjunct to the efforts of the parents.

EDUCATION FOR HEALTH
THE OPPORTUNITIES IN A MEDICAL INSTITUTION.

By Frances Stern, S. B., Chief of the Food Clinic, Boston Dispensary.

Health Education has been taken into the school program. Its purpose and content fit it to serve also the interests of preventive work in the medical institution.

In the Boston Dispensary there is at work a definite educational program developed for the health instruction of the children who wait (tediously, but for this program) to see the doctors, seeking health. It came to the Director of the Food Clinic, — here are children, and their elders, with time unattached — a teaching opportunity to be used in the interests of health. Thus it was that health education began its course in the Boston Dispensary.

Organically the work is attached to the Food Clinic, and under the supervision of the Director of the Food Clinic. A full-time, trained worker, called the Health Educator, develops the detailed program of health instruction for the children. On Saturday mornings when greatest numbers of children are present, four paid instructors assist in this part of the work. They are school-teachers, and for two hours they teach the children groups in the Children's Medical Clinic, the Dental, the Skin and the Food Clinics, developing their instruction in accordance with the outline which the Health Educator sends to them beforehand for their preparation, and with the aid of the demonstration and illustrative material which she assembles.

During the school days the Health Educator, assisted by interested volunteers, does the same kind of work with the smaller groups of children assembled in the various waiting rooms.

Also by means of exhibits, demonstrations, group talks, individual talks, and mothers' meetings, the health educator works directly with the adult patient.

Again the Food Clinic is a teaching and training centre for student dietitians, students in Home Economics, social workers, nurses, public health workers and medical students, and the Health Educator is given opportunity to tell these groups of workers of the developments in health education and their application in the schools, in welfare and nursing organizations, in medical institutions, and with the individual child and adult. She discusses methods of teaching, and she furnishes authoritative lists (in mimeograph) of the sources of health publications and illustrative material.

So the medical institution has enlisted, with the schools, in training the child to work for his own health, and each employs the same methods. But in place of the well-ordered group in the schoolroom, undisturbedly the teacher's, the group in the out-patient clinic waiting-room, assembled informally, has to be held together against the distraction of the hurrying doctors, nurses and workers, and the visible and audible distresses of patients, adult and child. Constantly, too, the group changes in character as patients are referred to other clinics, or come from other clinics, or are summoned to the physicians. Again there can be no gradation as to attainment or age; the Children's Medical Clinic, for instance, will yield a group of children whose ages range from six to fourteen years. Yet watch the children's close attention to the discussion, in which the teacher is aided powerfully by her carefully prepared illustrative material and story; and watch their concentration on the bit of a project that follows, in which they may work out, in colors or pictures, an idea suggested by the health discussion.

So the waiting period is occupied, and the doctor, when he arrives, or the dentist, has a fresher, less nervous and apprehensive child to examine.

The medical institution has a unique opportunity in its health educational work in that sitting near by and watching all procedures closely is so often the child's mother, she who must direct the health education in the home, especially for the younger children. Her mental attitude is receptive. She is concerned about her child's health, ready and eager for the advice that she has come to get, confident that it will be sound. She is open-minded toward all means used to emphasize health, — the poster, the exhibit, the work with the children, the attractive folder that states the health principles so clearly. When the health worker comes and gathers the children about her for the educational discussion, she is close at hand to be referred to when it evolves that she is violating a cardinal principle in her child's health training.

For example, brought face to face with a sketch of Sleep Town which shows nine-year-old children going to bed at 7.30, a nine-year-old child in the group confesses that he goes to bed at nine o'clock. Whose fault is that? Chiefly the mother's and here she is at hand to be helped to appreciate the importance to her child of the early bedtime hour and plenty of sleep. Or she becomes absorbed in the demonstration, by means of candle and box, of the effects of adequate and inadequate circulation of air, an especially important consideration for sleep. She sees, through the glass door of the closed box (bed-room) the flame of the lighted candle (child) increase, lower, grow dim or remain steady, in response to manipulation of the stoppers that are used to seal the four openings (windows) and smoking joss sticks, revealing the motion of the air current inside the box (at home similarly), at the same time indicate how the stoppers should be arranged for the movement of the air that will hold steady the bright flame of the child's health.

Or perhaps the talk will be about the iron that certain foods contribute to body building. The rich red of the blood (paint) in the test tube indicates plenty of iron in it. Whence is the iron gotten? Certainly *not* from any medicine or tonic, — only from the foods we eat! What foods? Here on this tray, — the leafy vegetables, especially spinach, the dried fruits, eggs, the whole-grained cereal, molasses. Another test tube contains paler blood (paint diluted). What a contrast when the two tubes are held together against the light! What's wrong with this poor pale blood? Not enough iron in it. The boy with such blood couldn't win in any game. He's not eating enough of these foods that will put iron into his blood. Follows the story, to deepen the impression, and the interesting piece of related work that gives the child something attractive to take home.

Or the talk is about the stuff that makes bones, using lime, powdered and in the form of chalk and marble, and lime-giving foods for illustration. Of all the foods, milk gives most lime for our bones and teeth. Here is an opportunity to appeal directly to the mother for the four glasses of milk a day, if possible, to help her growing child.

And while the children are intent on the work that always follows the health discussion and story, there is a chance for the intimate talk with the mother about the health habits, and for distribution among the older people, of the excellent printed material gotten out by the Massachusetts State Department of Public Health and the New England Dairy and Food Council.

So two go home from the clinic that day with a thought in their minds about health and health building, — one of them the child, and the other the chief agent in establishing the child's health.

Upstairs is the hospital with a small group of children bed patients, in the frame of mind of one eager to see, to hear, to do, and this is another opportunity which is capitalized in the interests of instruction in health.

Mothers' meetings are held, giving another occasion for conveying health ideas to the home manager, by means of talks in very simple terms from medical and other scientific people, accompanied by a health entertainment and a food demonstration.

The whole organization of the Dispensary's health education program is tied together by an Advisory Council, consisting of men and women notably interested in the health education movement.

Is not this whole activity a most appropriate outgiving on the part of a medical institution?

REPORT OF HEALTH EDUCATION PROGRAM IN TWENTY CITIES.

In an attempt to determine the kind of health education program carried on in various parts of the country, the Massachusetts Department of Health sent the following questionnaire to twenty representative cities:

Questionnaire.

1. What special health education projects are included in your program?
2. Have you a specialized personnel for these projects?
3. From what sources do you get your teaching material?
4. Does the Health Department have any share in your health education program?

The following is a summary of the answers received; they speak for themselves:

Question No. 1.

Ventilation of the schoolroom — 1.
Milk lunches — 3.
Health habit training — 11.
Open air rooms for tubercular and anaemic — 2.
Playground — 2.
Pre-school physical examination — 1.
Dental hygiene — 7.
Mental hygiene — 1.
Teacher-training class in health education — 1.
First aid work — 2.
Corrective gymnastics — 1.
Nutrition classes — 3.
Sight conservation classes — 1.

Regular gymnastics — 4.
Medical examination of teachers — 1.
General correction of defects — 5.
Annual physical examination — 3.
Summer camp for underweight — 1.
Campaign against hookworm — 1.
Weighing and measuring — 6.
Iodine tablets — 1.

Question No. 2.

Physical education instructor — 8.
Special health teacher — 3.
Teachers — 12.
School nurse — 11.
Nutrition teacher — 4.
School physicians and medical inspectors — 4.
Dentists — 3.
Dental hygienists — 2.
Welfare worker — 1.

Question No. 3.

American Child Health Association — 3.
National Tuberculosis Association — 3.
Elizabeth McCormick Memorial Fund — 1.
State Boards of Health — 2.
National Health Library.
Boston Medical Library.
A Public Health Association.
Children's Bureau.
National Dairy Association.
National Safety Council.
National Catholic Welfare Conference.
National Home Economics Association.
National Association of Visiting Teachers.
National Mental Hygiene Association.
National Association of Social Hygiene.
American Medical Association.
National Hospital Association.
National Eyesight Conservation Council.
Universities: (1) Chicago; (2) Columbia; (3) Iowa.
National Dental Association.
National Playground and Recreation Association.
National Association for Improving Condition of the Poor.
American Playground Association.
American Posture League.
U. S. Department of the Interior.
Various health text books.
U. S. Bureau of Labor.
Professional magazines.

Question No. 4.

Health Department in close co-operation — 3.
Charge of corrective side of program — 8.
Charge of control of communicable disease — 9.
Entire charge of health education program — 1.
No share — 3.

THE COMMONHEALTH.

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Sent Free to any Citizen of the State.

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Health Education. — With this issue we are presenting for the consideration of our readers a number of important phases of health education. There is, of course, really nothing new about health education. From the time that the first man struggled to an upright position from that of all-fours, health habit promotion has consciously or unconsciously been a reality. Sanitation is based on it, so is the control of communicable disease. The first thought of any health officer when confronted by an outstanding health problem should be — How can I get this over to the public? — and that is Health Education. But since adult man is as the beasts that perish when it comes to teaching him to change his fixed habits, our hope and encouragement lie, so far as personal hygiene is concerned, in teaching health habits to children.

No attempt has been made to make this symposium all-inclusive. Important phases have been omitted. The main purpose is to encourage thought along the line of a few definite underlying principles. And is not the greatest of these the health teachers of the future must be primarily the parent and the family physician?

Cancer as a Problem in Education. — At the first glance, the relationship between cancer and education may seem quite remote. But to those who have had to deal with the problem at close range, the hopeful side of efforts directed against cancer lies almost exclusively in the direction of educating the general public to a realization of the vital importance of early diagnosis and treatment. This is far from easy of accomplishment. Add to the well-recognized rigidity of the adult mind the disinclination of the average individual towards any discussion of cancer and one has a combination that is most difficult to overcome. Stimulate too great a fear of the disease and you create a hypochondriac. Understate the dangers and you perpetuate the present unfortunate condition of procrastination.

Under these circumstances, the health examination idea is the one to which we can turn with most confidence. Whether as a means of general health education or as an opportunity for early diagnosis, the health examination, periodic or special, shines out like a good deed in a naughty world. The surgeon should help the internist and both should help the health officer to make the health examination a factor to be reckoned with in cancer prevention and cure.

Changes in Staff. — Change as a law of nature operates in health departments as elsewhere. Some would have us believe that change is always good: others, that it is always bad. Theory aside, it is easy to believe change good when it brings to an organization new blood and enthusiasm; on the other hand, it is not so easy to be philosophical when the change involves the loss of fellow workers whose loyalty and talents have left their imprint upon the policies and accomplishments of the Department they served. It becomes necessary to chronicle instances of both types of change occurring during the last few months.

Resignations.

Miss Frances Klein. Miss Klein for the past four and a half years has been associate editor of the *Commonhealth.* Her originality and good judgment have furnished the sort of motive power which any magazine must have if it is to play a vital part in a worth-while field. In addition she has had charge of the publicity work of the Division of Hygiene and has headed its health education activities. The Department's methods of pictorial representation of health information have been practically revolutionized during the last four years under her guidance. Miss Klein goes to France to study art with best wishes for success from all her late associates.

Miss Vera H. Brooks. As consultant in school nursing, Miss Brooks served with success as guide, philosopher and friend to a large number of school nurses throughout the State. During the summer she ably conducted for this Department the course in school nursing procedures at the Summer School of the State Normal School at Hyannis. Miss Brooks goes to the school system of Norwood, Mass., as Dean of Girls and Director of Health Education.

Transfer.

Dr. Mary R. Lakeman, for the last five years Assistant Director of the Division of Hygiene, has been transferred to the Division of Administration as Epidemiologist in the Cancer Section. With the establishment of a new state cancer hospital and the promotion of local cancer clinics a tremendously large new responsibility has been thrust upon the Department. It is in this phase of the Department's activities that Dr. Lakeman will now have an important share.

New Staff Members.

Dr. Edward A. Lane. Dr. Lane, who is Acting District Health Officer, comes to the Department from the Tennessee State Department of Health. He received his Bachelor's degree in Arts from Williams College and his Doctor's degree in Medicine from Cornell. He also holds a certificate in public health from the Johns Hopkins School of Hygiene and Public Health.

Dr. Filip C. Forsbeck. Dr. Forsbeck is the new Epidemiologist in the Division of Communicable Diseases. He has a Bachelor's degree in Science from the University of Wisconsin and a Master's degree in Science from the same university. He also has a Doctor's degree in Medicine from Rush Medical College and has had public health training with the International Health Board. He holds the position of First Lieutenant in the Officers' Reserve Corps, M. C.

A Correction. — The last issue of the *Commonhealth* carried a list of towns carrying on dental hygiene work not in accordance with the statutes. Through a misinterpretation of the questionnaire returned by the town, North Andover appeared on this list. Inasmuch as the dental work is financed by private agencies, the statutory provisions regarding municipal work do not apply here. We apologize to North Andover.

NEW COMMUNICABLE DISEASE REGULATIONS.

From time to time the Massachusetts Department of Public Health has issued suggestions to local boards of health for the control of communicable disease. The hope has been that these boards, acting under their statutory authority, would adopt them as their own. This has occurred in a number of towns. None the less, there is still a very wide variation in the regulations adopted by various towns in the Commonwealth, even amongst those adjoining each other. This has been responsible for much confusion.

Since the issuance of the last set of suggested regulations there has been much discussion as to the desirability of modifying some of the prevailing practices regarding length of quarantine periods and control of contacts. This discussion both within the Department of Public Health and within the Massachusetts Association of Boards of Health has culminated in the acceptance by the latter association and by the Massachusetts Public Health Council of the subjoined Minimum Quarantine Requirements which are now offered to local boards of health with the recommendation that they adopt them as their own.

It may not be amiss to recapitulate here the statute governing the adoption of board of health regulations.

General Laws, Chapter 111, Section 31 (as amended by Acts of 1924, Chapter 180):

"Boards of health may make reasonable health regulations. All regulations made by boards of health under this chapter shall be published once in a newspaper published in the town, and such publication shall be notice to all persons."

MINIMUM QUARANTINE REQUIREMENTS.

DISEASE	MINIMUM PERIOD OF QUARANTINE OF PATIENT	PLACARD
Anterior Poliomyelitis (Infantile Paralysis)	Two weeks from onset of disease, and thereafter until acute symptoms have subsided.	Yes.
Chicken Pox	Seven days and until all crusts have disappeared.	No.
Diphtheria	One week from date of report and until 2 successive negative cultures, taken at least 24 hours apart, from nose and throat, have been obtained.	Yes.
Cerebro-Spinal Fever (Cerebro-Spinal Meningitis)	Two weeks from onset of disease, and thereafter until all acute symptoms have ceased.	Yes.
German Measles	One week from date of rash.	No.
Measles (Note 4)	One week from date of rash.	Yes.
Mumps	One week from onset of disease, and thereafter until the disappearance of swelling of salivary glands.	No.
Scarlet Fever	Four weeks from date of rash and thereafter until the discharges from nose and throat, ear, or abscesses or other surfaces (e.g., puerperal or surgical scarlet fever) have ceased.	Yes.
Smallpox	Three weeks and until crusts have disappeared and skin is healed.	Yes.
Whooping Cough	Three weeks from beginning of spasmodic cough.	Yes.
Typhoid Fever	One week after subsidence of clinical symptoms. If patient is a food handler he must have at least 2 negative cultures from both stool and urine. Cultures must be taken at least a week apart. (Note 5.)	No.
Septic Sore Throat	During the clinical course of the disease and convalescence, complete exclusion of the patient from participation in the production or handling of milk or milk products until permission is granted by the local Board of Health.	

MINIMUM QUARANTINE REQUIREMENTS.

Disease	Control of Adult Contacts	Control of Immune Children	Control of Children Not Immune
Anterior Poliomyelitis (Infantile Paralysis)	No restrictions except as to adult food handlers. (Note 1.)	No restrictions.	If child lives away from home one week and stays away from home can re-enter school. Otherwise same restrictions as patient.
Chicken Pox	No restrictions.	No restrictions.	No restrictions.
Diphtheria	No restrictions save Note 2.	If 2 negative cultures are taken and quarantine is effective the child then can continue in school.	If 2 negative cultures are taken and child lives away from home then can continue in school. Quarantine at home otherwise.
Cerebro-Spinal Fever (Cerebro-Spinal Meningitis)	No restrictions save in certain occupations. (Note 1.)	If child lives away from home 10 days and continues to live away from home, can re-enter school.	If child lives away from home 10 days and continues to live away from home, can re-enter school.
German Measles	No restrictions.	No restrictions.	No restrictions.
Measles (Note 4)	No restrictions save non-immune school teachers. These handled as non-immune children.	No restrictions.	Exclusion from school for 16 days from the date of last exposure.
Mumps	No restrictions.	No restrictions.	No restrictions.
Scarlet Fever	No restrictions save in certain occupations. (Note 1.)	No restrictions if away from home.	If child lives away from home one week and continues to live away from home, can re-enter school.
Smallpox	Note 3.	Note 3.	Note 3.
Whooping Cough	No restrictions.	No restrictions.	Exclusion from school 2 weeks from exposure.
Typhoid Fever	No restrictions save for food handlers, who cannot continue any work requiring food handling, without permission from the local Board of Health.	No restrictions.	
Septic Sore Throat	During the clinical course of the disease and convalescence, all contacts to be excluded from participating in the production or handling of milk or milk products until permission is granted by the local Board of Health.		

Notes.

1. School teachers should have same restrictions as school children. Food handlers and others whose occupation brings them in contact with children have no restriction if they live away from home.
2. School teachers must have 2 successive negative cultures taken 24 hours apart; food handlers and others whose occupation brings them in contact with children one negative culture.
3. If the patient goes to the hospital, isolation for 3 weeks for the non-immune contacts. If the patient stays at home non-immune persons living in the same household with the patient must remain in quarantine for 3 weeks after death or recovery of the patient.
4. Warning signs on house seven days *if there are no susceptibles in the family.* If there are susceptibles the placard is kept on sixteen days. If on the 16th day there are children showing prodromal symptoms of measles the card is not removed.
5. It is recommended that at least 2 negative cultures from both stool and urine be obtained in all cases. Cultures should be taken at least a week apart.

THE CARE OF CHRONIC CANCER PATIENTS IN MASSACHUSETTS.

By Mary R. Lakeman, M.D., Epidemiologist, Massachusetts Department of Public Health.

As I think over the huge undertaking we are launched upon in trying to make a lasting impression upon the rapidly increasing death rate from cancer, there comes to my mind over and over again a little anecdote told by Dame Rachael Crowdy (when she was in this country last May) of a quiet little woman, who, in spite of enormous difficulties and utterly inadequate resources, had been doing a remarkable piece of work among the refugees in the near east.

There was danger that the small appropriation which the League of Nations had been making to carry on this work was to be withdrawn. One of the committee members, after listening to the speaker, who was Miss Yippa of Denmark, said, "If the problem is so great, and what you can do amounts to so little, perhaps it is not worth while to do anything." To this the little lady replied, "Though our candle is small, the night is very dark." The appropriation was continued.

So, I hope, may we succeed in our problem of gaining control of the appalling cancer situation, by making use of all the light we have — every bit of it — until little by little more light is added through further studies in field and laboratory.

The brightest spot we can see at present is this: that certain forms of cancer in accessible regions of the body are curable with the use of modern facilities. An estimate of the extent to which this is true has just come to us from the Mohonk Conference, where it was stated that at least 30% of all cases should be curable by modern methods. At present, our surgeons state that only 10 or 12% are being cured. The same reason is given by all: "We did not see the patient early enough." To shorten the time between the patient's discovery of his trouble and his first visit to the physician is therefore the first aim of our preventive program.

Whereas it seems that but little can be done in our present state of ignorance, it is helpful to recall the small beginnings of the Tuberculosis campaign.

There was scarcely more knowledge of Tuberculosis available at that time, early in this century, than we now have of cancer. Yet the use of each bit of knowledge, as soon as it was known to be true knowledge, has led step by step to the greatest conquest of a disease which the world has ever known.

Legislative Act.

At any rate, the Legislature of 1926 became convinced that something could be done about the cancer situation in the State, and that something must be done. The Legislature has placed the responsibility for the doing of this something squarely on the shoulders of the Department of Public Health. (Chapter 391, Acts of 1926.)

This Act calls for three forms of effort:

1. A State Hospital.
2. Diagnostic Clinics.
3. Further Study of the Problem.

Terminal Care.

We shall here concern ourselves with only one phase of this program, which according to our subject title is the "Care of Chronic Cancer Patients." As cancer is always a chronic disease, we might interpret this as meaning, "chronic care," so to speak, of the terminal case.

The cancer patient, who through failure of our present-day methods to control his disease or failure on his part to take advantage of such knowledge as we have, has come to the stage where he needs regular skilled care through long, tedious months, when the best we can hope is that he be kept as comfortable and happy as may be under distressing and disheartening circumstances, is in a difficult position.

One of three procedures usually is open to him:

1. To remain at home.
2. To go to a local hospital or a nursing home.
3. To go to a hospital far from home.

Let us look for a moment at his needs as we see them in trying to help him make his choice.

1. He must have a light, airy, and reasonably quiet room, either to himself or providing ample space, which he can have to himself.

2. He must have nourishing and well-cooked food, adapted to his digestive capacity and served at regular intervals.

3. He will need probably about four months of bed care, and all this involves constant attendance, bathing, feeding, entertaining and condoling. His permanent attendant need not necessarily be a graduate nurse, but whoever he or she is, whether a member of the family or an employed attendant, she should always act under the instructions of both a physician and a skilled graduate nurse.

At times a degree of nursing skill, equal to that required in surgical nursing will be needed, in order that we may give such relief as we owe to these sufferers.

Where at present can our incurable cancer patients receive such care?

1. Some will find it in their own homes.

It is to be hoped that it will always be true that most of these patients can be provided for in their own homes. At present about 70% remain at home throughout their illness. Here they are happier, less lonely, and home is the only place where the sufferer can be made to feel that he is not being cast aside when most in need of help.

Such efforts as are made in our communities to relieve the cancer situation will, I trust, be made always with the home in view as the place of choice for the care of the terminal cancer patient.

A way can often be found to keep the patient at home if all the facilities of a community are taken into account. First, foremost, and never-to-be-forgotten, whatever may be the financial resources of the patient, is the visiting nurse. In suggesting this, do not for a moment believe that I am blinded to the multitudinous duties which are being piled upon the shoulders of the visiting nurse. I would not add to the duties of the individual nurse, but we must have more of her.

The expense of nursing service to the community in comparison with hospital care is not to be mentioned. Hospital care is by all means the most expensive solution of the problem.

Moreover, the organization supporting health nursing can frequently increase its income sufficiently to cover the care of all needy patients, by the simple expedient of charging those who can pay the per visit cost of service.

2. Some will look to the local hospital or a nursing home.

Every physician, nurse or social worker has had the experience, without doubt, of trying to place a chronic case in a general hospital. There is seldom difficulty in securing hospital accommodations for the operative case, but few hospitals are ready to give the long time care needed for the terminal case of cancer.

The committee appointed by the Legislature last year to study the cancer problem made a survey of the hospital facilities for handling cancer in 19 cities, (including the Metropolitan area as one city) and 16 towns, selected in such a way as to give an idea of the situation throughout the State.

This study brought to light the fact that there is great need for additional beds in the cities, whereas in the rural communities, the demand is almost negligible. One reason for this is, undoubtedly, the lesser incidence of cancer found to exist in the smaller towns.

In ten of the cities surveyed, all the hospitals refused to admit terminal cancer.

In three of the cities surveyed, they will care for a few.

In one city, the hospital limits the stay to a six weeks' period, while in one other city, the limit is two weeks.

In Boston and the Metropolitan area, five hospitals take late cases. In only three cities of the group surveyed do the hospitals freely admit cancer cases.

The policy of the hospitals in the smaller towns (where the need, however, is less) is somewhat more liberal toward the cancer patient, as most of these hospitals admit cancer patients who have no other place to go.

Most communities have one or more of the nursing homes familiar to all. Usually a married nurse takes a few cases into her home, giving them nursing care. Some of these nurses will take cancer cases. The standard of care in these homes varies from the best to practically none at all, and the expense is usually heavy because of the long time during which care is needed.

3. The patient may seek one of the larger hospitals in a medical center.

There are a few hospitals situated in the larger cities which accommodate incurables to a limited extent, but there is no approach to adequate provision at moderate cost for all needing long time care.

Moreover, patients dread leaving home to go to a distant city and are often unwilling to accept hospital accommodations even when they are available. Some wise person has said, "Anyone will go to the ends of the earth to be cured, but we all want to die near home."

4. An almshouse or the state infirmary represents to the average individual the last resort life offers, and this indeed it often proves to be for the cancer patient. It seems a sad pity and a reflection on our sense of community responsibility that persons who have all their lives been self-supporting, and self-respecting must, in their last illness, become public charges, because of a lack of hospital or home provision for their care.

Furthermore, most of our local almshouses are quite unprepared to give the skilled nursing which is often needed by a cancer patient, not to mention the total lack of modern means for palliative treatment which are often of great benefit in the relief of suffering.

These appear to be about all the avenues of choice that are open to the average patient facing long months of illness from inoperable cancer.

Hospital Facilities.

There have been approximately 5,000 deaths from cancer annually in this state in recent years. The committee of last year estimated that about 30% of these, or 1500 patients, will need hospitalization, usually for the last four months of life. At present, the average length of time during which hospital care is available is 1½ months. At this rate, by a process of mathematical reckoning, the conclusion has been reached that at least 340 additional beds are needed. It has recently been considered that this number is nearer 400. The greatest need appears to be among people in moderate circumstances who can pay from $7 to $12 a week.

1. The General Hospitals have been assuming each year more and more of the load of inoperable cancer, for the increase in the number of cancer admissions has been more rapid than the increase in the number of cancer deaths.

I. E.,

In 1912, 20% of cancer deaths occurred in hospitals, while
In 1923, 26% of cancer deaths occurred in hospitals, in spite of an increase in the total number of cases.

The cancer patient who knows or whose friends know that he will not recover is far happier in his own city among his friends. Many of the general hospitals could take a larger share of the load of terminal cancer cases than they are now doing.

2. The county Tuberculosis Hospitals.

In one instance, the county tuberculosis hospital, under special authorization of the Legislature of 1926, has opened its doors to sufferers from chronic disease other than tuberculosis. This seems a satisfactory solution in one instance, and one wonders whether it may not prove to be a solution in other counties.

3. New Facilities in Boston.

The Palmer Memorial Hospital for Incurables now under construction will furnish 75 beds for chronics, all of which, except about 10, will be reserved for terminal cancer cases.

The Holy Ghost Hospital is erecting an additional wing which will provide 100 beds for all types of chronic, incurable cases. No distinction will be made between cancer and other chronic cases.

4. State Hospital.

A State Hospital, as provided for in the Legislative Act of 1926, is being fitted out at the present time. The Norfolk State Hospital (formerly used for alcoholics and drug addicts, and later used by the Federal government as a psychopathic hospital) has been chosen as the best available place for the immediate purpose. This will provide 80 beds for all types of cancer. Policies with regard to charges and other matters have not yet been determined.

This covers to the extent of my knowledge the promise of the immediate future toward meeting the need for hospital care for terminal cases of cancer.

Recommendations.

The Department of Public Health is recommending:

1. That physicians, social workers, and nurses bend their efforts toward encouraging home care just as far as it is possible to bring it about.
2. To this end, we urge fuller recognition of the great value and of the comparative economy of the extension of the Visiting Nursing Service now available.
3. Again, we hope and trust that general hospitals will still further increase their provision for terminal cases of cancer, so that a patient who cannot be cared for in his home may at least receive care near home and friends.
4. The Commonwealth will stand ready within a few months to care for cancer cases of all types to the number of 80, at the Norfolk Hospital, whenever, and only whenever, local provision cannot be made which will better meet the patient's need. It would be most unwise to send to this hospital patients already well cared for at a local hospital.

Preventive Measures.

In closing, may I urge all social workers to look at this problem of cancer broadly, keeping in view always the preventive aspect. The patient, now past real help, in whom we are interested and who has our unlimited sympathy might at some time have obtained permanent cure had he but known when and where to seek it.

Every cancer was at its start a local affair, and if it was so situated that it could be easily removed while thus localized, there was at that time a good chance for cure.

This chance comes once and once only, at, or near, the beginning of the disease. An opportunity lost at this time is lost never to return.

Let us not overlook the opinion of a large group of our best surgeons, that 70% of the cancers in accessible localities are literally curable in the sense that they do not recur within five years. To mention a few of these which are amenable to early treatment — cancers of the skin, of the mouth or larynx, of the female breast, of the uterus, and of the rectum are all possible of early discovery and amenable to prompt and effectual treatment. Taken together these constitute about 60% of all cancers.

One, at least, of our expert cancer men goes so far as to state that no cancer of the skin ought ever to be allowed to reach a stage in which it is not curable by thorough removal.

Health Examinations.

As a means by which the individual may find this golden opportunity and take advantage of it in time to prevent the development of hopeless cancer, no better way has yet been found than the annual health examination.

Let us practice and preach the doctrine of health examinations in season and out of season until having a health examination becomes the thing to do, a fashion as inexorable as the unwritten law on the proper time for men to wear straw hats or on the prescribed length of skirts for women.

Thus, and thus only, will the medical profession be in a position to make prompt use of the light which is constantly being thrown on the subject by modern research, while the patient will find in his own physician the friend in need who will be able to discover the slight indication of danger, before it can lead to serious trouble.

Maternal and Infant Hygiene Section

Compiled by Susan M. Coffin, M.D.

STUDY OF 79 INFANTS DYING FROM CARDIAC DISEASES (1924)

By Susan M. Coffin, M.D., Pediatrician, Massachusetts
Department of Public Health.

The records for this study were obtained by the child hygiene nurses in a large city and were received through the courtesy of the City Health Department. The nurses took the death certificates as filed and obtained the information from families, hospitals and physicians. A record form was provided by the Massachusetts Department of Public Health to use in getting the histories but it was found impossible to get all the information desired.

1. THE MOTHERS

Of the 79 mothers 23 were primiparae; 18 had three months or more of prenatal care, while the remainder had very little or no prenatal care.

Twenty-one of the births were instrumental deliveries; one delivery was postmortem. Illness of the mother during pregnancy was not recorded on these records, and maternal deaths were not recorded with one exception. No information on breast feeding was obtained for this group.

2. INFANTS

Boys — 42 Girls — 32 Sex unstated — 5
Babies dying first month — 60 (38 of whom died the first week)
Premature births — 7
Instrumental delivery — 21
Postmortem delivery — 1
No autopsies were done. Diagnosis was postmortem in 7 cases.

Causes of death as stated on the death certificates:

1. **"Congenital heart disease,"** or "congenital heart" was given as the cause of death in 35 cases. Just what form of defect occurred was not noted. Twenty-nine of these babies died within one month of birth.

Congenital heart disease with complications occurred in five more cases; broncho pneumonia 2; oedema of lungs 1; anomalies of great vessels and congenital atelectasis 1; malnutrition 1. In this as in the first group just what the heart condition was in these cases was not stated.

2. **Congenital Endocarditis** — This diagnosis was made in seven cases, all of whom were instrumental delivery but one. There was no history of illness of the mother; five had over three months prenatal care, the longest period being five months.

Abt (Pediatrics, Volume I, page 234) remarks that "Acute cardiac disease is almost never found in infancy, in fact one very rarely finds an acute cardiac lesion until after the third or fourth year" and adds that if there is an acute lesion, the mitral valve is the one usually involved; but to make such diagnosis one must have a definite history of some preceding infection (mention: pneumonia, tonsillitis, furunculosis, scarlet fever, focal infection). Murmur (to be diagnostic) must be accompanied by enlargement and decompensation.

3. **Open Foramen Ovale** (25) — This was the largest group in which a somewhat definite diagnosis was made. We have included under this head, "open," "patulous" and "patent" (sometimes spelled "patient!") foramen ovale; "blue baby" and "foetal heart," as well as two cases of "valvular heart disease," as many physicians in speaking thus of newborn cardiacs do mean open foramen ovale.

Three of these 25 babies were prematures which of course lessened their chances materially. Hemorrhage (skin, lungs) appeared in three babies. Note was made of adverse maternal conditions in two cases (hemoptysis and albumin in one case: "normal delivery exhaustion" in another).

Nineteen of these mothers were multiparae, and all deliveries in this group but one were spontaneous, the length of labor varying from one-half hour in one case to two days in one other case. A diagnosis of patent foramen ovale is doubtless sometimes made, if cyanosis is present, when there is atelectasis or pneumonia.

4. **Infants dying from other cardiac causes** — Two infants showed hypertrophied hearts, one living nine and one-half months and one for one month and one day. Two were stated to have congenital malformation of the heart, one of whom had cerebral thrombosis (a twelve-hour spontaneous delivery in a primipara). One died of "congenital heart exhaustion" and one of "Acute cardiac collapse." The remaining baby in this group died of "congenital valvular heart trouble, aortic insufficiency and general debility."

SUMMARY

Cardiac causes of death were stated in 79 cases in a group of 1031 infant deaths occurring in a city in Massachusetts in 1924.

1. Congenital heart disease — 35
   Congenital heart disease with complications — 5
2. Open foramen ovale — 25
3. Congenital endocarditis — 7
4. Other cardiac causes — 7

Premature birth occurred in 7 instances
Instrumental delivery occurred in 21 instances
18 mothers could be said to have had approximately adequate prenatal care
20 babies lived over one month (9 over 6 months)
38 died the first week

With heart diseases at present heading the list of causes of death even this small group is of some interest and brings before us again the question, "Can anything be done to prevent death from cardiac causes at this early age?"

Adequate prenatal care could avert premature birth or difficult labor in some cases and save the new born cardiac this added strain. Earlier recognition of cardiac defects would be of value doubtless, but none can deny that diagnosis is difficult in these cases. Autopsy would be of great value in studying such a group and give us more light on the causes of which we know so little at present that we can only refer to them under the general headings of developmental defects, possible birth injury, and rare infections. More complete records of infant deaths as a whole are much to be desired.

"A HIGH WORD"

To require the inspirational element in a breast-feeding campaign, is to arouse sleeping dogs. Are moral values also an essential? Are a mother's social obligations more important than the proper care of the helpless infant who has come to her as a precious treasure, and as a definite responsibility? Really, I am only prepared to point out certain considerations that loom large.

1. That a woman's ability to nurse her baby follows as a natural result of her completed pregnancy. Shall any of us say that a woman has the capacity for pregnancy and not for lactation? Really, we do insult to woman.
2. That almost all mothers are able to nurse their babies.
3. That leading pediatricians tell us that a period of at least three weeks, and preferably four, should be allowed for trial, and during this time the physician and nurse should see that breasts are milked regularly and stripped, that the mother has sufficient rest and food, and daily exercise in the open. Of equal importance is the building up of the mother's confidence in her own ability to produce milk. Most mothers want to breast feed when the advantages are made clear to them.

I should say that breast feeding is easily attainable without moral appeal, but the unwilling mother will not reach the goal unless aided by moral appeal. As for the mother who thinks cow's milk is as good as mother's milk, the case is not much different. This mother needs to be reminded of the following points.

1. That an all wise God created us and, therefore, made provision for our helpfulness at birth and if cow's milk were better, provision would have been made by the Creator.

2. That cow's milk is suitable for animals, not for young babies.
3. That mother's milk is suited to the baby's requirements and is protected by natural safeguards.
4. That cow's milk may contain infection from the cow, from unclean methods of handling and that it is usually more than 24 hours old when it reaches the baby.

We are not here concerned with the rare mother who cannot nurse her baby. We are agreed that she exists.

We may swell every expenditure in public health nursing budgets, and we may receive every assistance in breast-feeding campaigns, but unless we dispel the delusion and darkness which envelops this question of breast feeding, and display, in its full danger and genuine colors, the ruin which is brought to civilization by artificial feeding, our efforts will be futile. Mothers must be aroused to their dignity and duty so that they will give their support to the physician who is trying to do what is right. If we can persuade nursing mothers that while a drop of milk remains in the breast there is hope; if we can persuade nursing mothers that breast milk in small quantities is valuable, we will have travelled far on the road that leads to child health. In the moment in which the mother realizes her responsibility, and her ability to fulfill it the spell of bottle feeding is broken.

The following stories are told by the nurses. Names and initials are genuine and are used with permission. E. B. tells the story of Dr. T's patient. During a well baby visit to Katherine, the mother's pregnancy was discovered and for baby Margaret, then seven months in utero, the breast feeding campaign began at once. This was the fifth pregnancy and all the babies had been bottle fed because of inverted nipples. A careful explanation followed by a demonstration of the treatment of nipples before parturition paved the way for successful after-care work. A daily visit for two weeks after birth to pull out the nipples and start the baby nursing, together with all the encouragement we could give this mother and the firm stand of the physician, resulted in an entirely breast-fed baby. The mother says that she was repaid for her efforts and her sacrifices because Margaret has been the happiest of the five babies. She is a real campaigner in the neighborhood.

Dr. P. and M. B. gave two months prenatal care to the mother of baby Charles who was born prematurely in the hospital weighing 2 lbs. 14½ oz. The baby was put on a formula of Dryco supplemented by breast milk from another mother. At the end of two weeks the mother returned to her home, leaving Charles in the hospital for further care. At this time the nurse renewed her visits to the home and found a woman disappointed over her apparent inability to breast feed her first baby. There followed a careful and reassuring message covering the following points: importance of regular milking and stripping, daily exercise in the open, sufficient rest, abundant diet, freedom from worry and a hopeful attitude. At the end of a few days the mother was able to take some milk to the baby and she continued to do this until the baby was taken home. The baby remained in the hospital about six weeks and weighed six pounds on discharge. This mother never had an abundant supply of milk but she was able to give some breast milk for three and one half months. At seven months the baby weighed 15 lbs. Three factors were responsible for the success achieved here, first, the mother realized her responsibility; secondly, doctor and nurse worked closely together; and, thirdly, both of them stressed the importance of even small quantities of milk. This last point is frequently overlooked. Many a mother becomes discouraged because she does not have an abundant supply and no one has emphasized the importance of even a small quantity when the larger amount is not available.

Dr. L's patient was nursed by M. M. There had been no prenatal care and birth was effected by a difficult instrumental delivery. Baby Francis began life with several deep cuts on the face and neck. He weighed 6¼ lbs. but was not strong enough to nurse. His mother was not interested in breast feeding and the paternal grandmother argued in favor of her apparent successes with artificial feeding. Altogether it seemed hopeless. Both doctor and nurse realized their responsibility toward a helpless baby and did their duty. At first the mother had no milk and a neighboring mother was found who nursed the baby until the regular stripping stimulated the mother's supply. The breasts were milked regularly and the milk was fed to the baby with a medicine dropper until he was strong enough to nurse. Francis is now six months old, doing well and entirely breast fed. The mother is happy in the possession of her baby and proud of the fact that she has been able to perform one of her natural functions.

F. B. tells the story of Dr. A. M. C.'s patient and proves the statement which we have so often repeated, that the success of the breast feeding campaign rests largely with the physician. Anne's mother did not understand English, but she had a physician whose mother tongue, like her own, was Italian and we admit that this accounted for, at least, a portion of the success.

Anne was the second baby and plans had been made to have her fed, like Phylis, on the bottle. Do not for a moment think that we blamed this particular mother for her intention because Phylis had been through the contagious disease series and looked fairly well. In addition, the mother had very badly inverted nipples. To both parents, Dr. C. explained the reasons why breast feeding was best and he proceeded to teach by word and work how it could be done. He made many visits, using a nipple shield and putting the baby to the breast and reiterating each day the value of breast milk. As a result Anne's rights have been safeguarded and she has been breast fed. The nurse says this is due entirely to the work of the physician, while Dr. C., by the way, says that the father, too, was a great help with his influence.

—*Mary McGee.*

GROWING PANES

In Birmingham, England, educators studied "the little window where the sun peeped in at morn"; weighed, measured, counted the red corpuscles of school children who spent a school year behind windows fitted with ordinary glass, compared them with data on children studying behind glass made specially to permit the transference of ultra-violet rays in sunlight. The ultra-violet children surpassed their common glass fellows by three pounds, half an inch, many a corpuscle (8%). Last week the Birmingham educators decreed ultra-violet glass windows for all schools. (Many a U. S. school has studied ultra-violet effects on health. No large U. S. city has yet installed special panes on all its schools.)

(*Taken from "Time" — October 18, 1926, Issue*)

REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of July, August and September, 1926, samples were collected in 135 cities and towns.

There were 1,927 samples of milk examined, of which 759 were below standard, 43 samples had the cream removed, 39 samples contained added water, 1 sample of skimmed milk above the legal standard, 2 samples of skimmed milk below the legal standard, 1 sample had the cream removed and also contained added water, 2 samples contained dirt, 8 samples contained formaldehyde, and 1 sample contained a foreign substance.

There were 199 samples of food examined, of which 38 were adulterated. These consisted of 8 samples of butter which were rancid; 8 samples of cream, 7 samples of which were below the legal standard in fat, and 1 sample contained formaldehyde; 1 sample of maple syrup which contained cane sugar; 5 samples of egg noodles which did not contain sufficient egg; 1 sample of olive oil which contained cottonseed oil; 7 samples of soft drinks, 3 samples of which contained a compound of benzoic acid, 2 empty bottles ready for use in a dirty soft drink plant were capped and examined, and were found not to be sterile, and 2 samples contained coloring matter; 1 sample of sheep plucks which was decomposed; 1 sample of hamburg steak which contained a compound of sulphur dioxide not properly labeled; 2 samples of orange juice which contained coloring matter and were not properly labeled; and 4 samples of vinegar, 2 samples of which were low in acid, and 2 samples sold as pure cider vinegar were not found to be such upon examination.

There were 23 samples of drugs examined, of which 6 were adulterated. These consisted of 6 samples of spirit of nitrous ether, all of which were deficient in the active ingredient.

The police departments submitted 2,487 samples of liquor for examination, 2,444 of which were above 0.5% in alcohol. The police departments also submitted 14 samples of poisons for examination, 5 of which were morphine, 1 cocaine, 1 mercury, and 7 samples were examined for poison with negative results.

There were 36 hearings held pertaining to violations of the Food and Drug Laws.

There were 55 convictions for violations of the law, $1,305 in fines being imposed.

Nelson G. Foisie and Emanuel Luakas of Stoneham; Hans T. Jeppesen, 2 cases, of Salem; Paul Songer, 2 cases, of East Walpole; Shirley Allen, Manuel Arruda Moise Biron, Onezime Richards, Joseph S. Salvador, Joseph Talbot, John Mastera, Manuel Oliver, and Gill B. Pimental, all of New Bedford; Eugene Bibeau, Manuel C. Leit, and Ernest Talbot, all of Acushnet; Thomas Bulcock, John S. Gracie, Edmund R. Horsfall, Augustus J. Arruda, and Antone C. Olivera, all of South Dartmouth; William Helfand and Manuel Santos of North Dartmouth; Nick Cocoting, Howard F. George, and John Zahos, all of Salisbury; John Teixeira of Fairhaven; John Butler of North Fairhaven; Charles Bjorbacka of Hubbardston; William V. Ripley of Oak Bluffs; Roy W. Busby and Otto C. Hall of Great Barrington; Joseph Dellegatta of Waverley; James E. Barrett of Williamstown; Matthew J. Bennett of Burlington; John Bigelow of Harvard; Alpheus L. Billington and Aeppokrotas Sotariow of Stoughton; John Lewis of Westport; George C. Nugent of Gloucester; Hong Ting of Provincetown; H. P. Hood & Sons, Incorporated, of Boston; and James Xenakis of Springfield; were all convicted for violations of the milk laws. John Zahos of Salisbury; William Helfand of North Dartmouth; and Roy W. Busby of Great Barrington, all appealed their cases.

William H. Phinney, 2 cases, of North Adams, was convicted for selling cream below the legal standard.

Manuel Maderos of Dartmouth was convicted for obstruction of an inspector.

J. Ernest Houle, 3 cases, of Manchester, New Hampshire; Mark A. Jackson of Orange; James Van Dyk Company of Springfield; and Max Price of Boston, were all convicted for violations of the food laws.

Wilfred Dumaine of Westport was convicted for violation of the slaughtering laws.

In accordance with Section 25, Chapter 111 of the General Laws, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers, or producers:

Milk which contained added water was produced as follows: 7 samples, by John Bigelow of Still River; 4 samples, by Manuel Oliver of New Bedford; and 1 sample each, by Antone C. Olivera of South Dartmouth, and James Strike of Great Barrington.

Milk which had the cream removed was produced as follows: 1 sample each, by Frank G. Vieria of Westport, and N. W. Hart of Great Barrington.

One sample of milk which had the cream removed and also contained added water was produced by William Helfand of North Dartmouth.

Two samples of milk which contained dirt was produced by L. Silva of New Bedford.

Eight samples of milk which contained formaldehyde was produced by Essex Dairy Company, Incorporated, of Salem.

Cream which was below the legal standard in fat was produced as follows:

1 sample each, by Joy's Restaurant of Gardner, C. S. Low Company of Salem, Waldorf Lunch, Marshall's Lunch, and Albert's Lunch, all of Chelsea; and 2 samples, by Richmond Cafeteria of North Adams.

One sample of cream which contained formaldehyde was produced by Essex Dairy Company, Incorporated, of Salem.

Soft drinks which contained a compound of benzoic acid was obtained as follows:

2 samples, from George W. Lowell of Boston; and 1 sample, from Massoitt Beverage Company of Springfield.

One sample each, of soft drinks which contained color and not so labeled, was obtained from Carmello Capillo and Gilman Blatchford, both of Gloucester.

One sample of hamburg steak which contained a compound of sulphur dioxide not properly labeled was obtained from United Butchers, Incorporated, of Attleboro.

One sample of maple syrup which contained cane sugar was obtained from James Van Dyk Company of Springfield.

One sample each, of egg noodles which did not contain sufficient egg, was obtained from Prince Manufacturing Company of Boston, and Atlantic Macaroni Company, Incorporated, of New York.

There were eleven confiscations, consisting of 30 pounds of decomposed poultry, 241 pounds of decomposed beef, 40 pounds of decomposed beef brains, 482 pounds of decomposed pork, 10,890 pounds of decomposed pork trimmings, 35 pounds of decomposed pork kidneys, 15 pounds of decomposed mutton, and one barrel of decomposed winkles.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of June, 1926: — 4,192,980 dozens of case eggs, 1,001,610 pounds of broken out eggs, 7,229,837 pounds of butter, 1,041,052 pounds of poultry, 4,996,096 pounds of fresh meat and fresh meat products, and 8,368,161 pounds of fresh food fish.

There was on hand July 1, 1926: — 10,622,910 dozens of case eggs, 1,525,905 pounds of broken out eggs, 8,609,520 pounds of butter, 3,087,984 pounds of poultry, 11,973,115 pounds of fresh meat and fresh meat products, and 14,647,713 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of July, 1926: — 1,753,260 dozens of case eggs, 986,549 pounds of broken out eggs, 7,553,736 pounds of butter, 958,299 pounds of poultry, 4,303,799 pounds of fresh meat and fresh meat products, and 6,142,679 pounds of fresh food fish.

There was on hand August 1, 1926: — 11,103,120 dozens of case eggs, 2,142,584 pounds of broken out eggs, 15,046,457 pounds of butter, 3,078,315 pounds of poultry, 13,448,009 pounds of fresh meat and fresh meat products, and 18,863,171 pounds of fresh food fish.

The licensed cold storage warehouses reported the following amounts of food placed in storage during the month of August, 1926: — 1,219,620 dozens of case eggs, 317,214 pounds of broken out eggs, 2,996,696 pounds of butter, 908,670 pounds of poultry, 2,180,646 pounds of fresh meat and fresh meat products, and 4,124,876 pounds of fresh food fish.

There was on hand September 1, 1926: — 10,815,300 dozens of case eggs, 2,130,488 pounds of broken out eggs, 16,251,973 pounds of butter, 2,991,370 pounds of poultry, 11,905,574 pounds of fresh meat and fresh meat products, and 21,460,201 pounds of fresh food fish.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Commissioner of Public Health, George H. Bigelow, M.D.

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The Berkshire District	Leland M. French, M.D., Pittsfield.

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